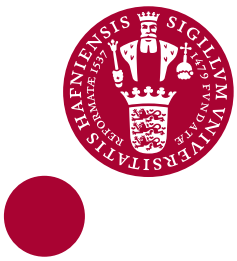

Fair and effective?

The prospects of Reducing Emissions from Deforestation and Degradation in Northern Cambodia

Pasgaard, Maya; Nathan, Iben

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Cover image: Swidden agriculture in Luang Namtha Province, Laos (photo by Ole Mertz)

Carbon-Land-Property conference, July 1-4, 2014
All plenaries in Auditorium B

Time	Tuesday, July 1	Wednesday, July 2	Thursday, July 3	Friday, July 4
09.00-10.00		**Keynote**: **Nancy Peluso** (discussant:Jean-Christophe Castella)	**Keynote: Arun Agrawal** (discussant: Thomas Sikor)	**Keynote: Christine Padoch** (discussant: Finn Danielsen)
10.00-10.30		COFFEE BREAK (Rotunda, level 3)	COFFEE BREAK (Rotunda, level 3)	COFFEE BREAK (Rotunda, level 3)
10.30-12.30		10.30-11-30 **Keynote**: **Frédéric Achard** (discussant: Patrick Hostert) 11.30-12-30 **Parallel sessions** - Carbon and biomass (I) - Conflict and security (I) - Local realities and impacts (I)	10.30-11.00, auditorium B **Michael Bucki**, EU-Commission, DG CLIMA 11.00-13.00 **Parallel sessions** - Local representation (II) - Policy: Designing REDD+ - Land tenure: Asia - Local realities and impacts (IV)	10.30-11.00 **UNFCCC policy process** Peter Iversen, Danish Energy Agency 11.00-12.00 **Keynote: Arild Angelsen** (discussant: Daniel Müller) **Closing remarks: Ole Mertz**
12.30-14.00	REGISTRATION	LUNCH BREAK	LUNCH BREAK	LUNCH and END OF CONFERENCE
14.00-15.30	**Welcome address, auditorium B: Niels Elers Koch**, Head of Dept. and President of IUFRO **Anastasios Kentarchos**, EU-Commission, DG Research **Introduction to the conference Ole Mertz**	**Parallel sessions** - Carbon and biomass (II) - Conflict and security (II) - Local realities and impacts (II) - Citizenship and state	**Parallel sessions** - Deforestation and land-use (I) - Local representation (III) - Policy: Outcomes of REDD+	
15.30-16.00	COFFEE BREAK (Rotunda, level 3)	COFFEE BREAK (Lunch room)	COFFEE BREAK (lunch room)	
16.00-18.00	16-18 **Keynotes:** **Sandra Brown** (discussant: Kristell Hergoualc'h) **Esteve Corbera** (discussant: Christian Lund)	16-18 **Parallel sessions** - Carbon and biomass (III) - Local realities and impacts (III) - Land tenure: Africa - Local representation (I)	16-18.00 **Parallel sessions** - Deforestation and land-use (II) - Participatory MRV (I) - Policy: Climate change policy - Policy: Governance	
18.00-	**Reception**		**19.00: Conference dinner**	

PARALLEL SESSIONS

We have planned for two presentations per hour (including questions and discussion) – the individual presenters should aim for about 15-20 min. presentation followed by 10-15 min. discussion within their half hour slots. We have tried our best to avoid thematic overlaps. Larger sessions are split into sub-sessions or sub-themes, but will stay in the same location (room or auditorium) and on the same day(s), as far as possible.

Carbon and Biomass – Auditorium C

Abstract	Abstract title	Author (first)
Part I: Wednesday 11.30-12.30 (Chair: Andreas de Neergaard)		
53	Exploring the potential of the permanganate oxidation method as a tool to monitor soil quality in agricultural upland systems	Catherine Maria Hepp
66	Opportunities for REDD+ in degraded forests and complex landscapes	Thilde Bech Bruun
Part II: Wednesday 14-15.30 (Chair: Andreas de Neergaard)		
10	Motivations and attitudes towards supplying biomass for energy among European forest owners	Kristina Blennow
11	CO2 and agrarian change: oil palm, emissions and certification in Mesoamerica	Antonio Castellanos-Navarrete
27	Spatial dynamics of deforestation and degradation in African woodlands	Yaqing Gou
Part III: Wednesday 16-18 (Chair: Kristell Hergoualc´h)		
47	Forest carbon trends 2002-2013 at Mt. Elgon, Uganda	Koen Vanderhaegen
30	Quantifying the causes of deforestation and degradation: a method and case study from Mozambique	Casey M Ryan
77	Trade-off Analysis of Emission Reduction in Kutai Barat-Indonesia	Suyanto
General discussion of panel session		

Citizenship and State – Meeting room 1

(chair: Amanda Hammar)

Abstract	Abstract title	Author (first)
Wednesday 14-15.30		
7	Local Citizenship in Forestry and Development Interventions in Bikoro Territory (Democratic Republic of Congo)	Raymond Achu Samndong
16	Agrarian Transformation and Citizenship in Malawi: the Resurgence of Land Reclamation Movements and the Political Economy of the 'Non-Change'	Davide Chinigo
21	State Power for Low Carbon Development: Evaluation of Forest and Bioenergy Carbon Projects in Tanzania, Uganda and Moldova	Mark Purdon

Conflict and Security – Room 12

(chair: Khamla Phanvilay)

Abstract	Abstract title	Author (first)
Part I: Wednesday 11.30-12.30		
29	Land use and armed conflict: reasons for forest carbon conservation among traditional farmers in the Colombian Amazon	Augusto Carlos Castro Nunez
39	Potential for Group-Based Approaches to Enhance Security of Assets for Women to Manage Risk under Climate Change	Aiveen Donnelly
Part II: Wednesday 14-15.30		
50	Resource governance and food security nexus in the Nam Ngum River Basin, Laos	Yayoi Fujita Lagerqvist
57	Exclusions as consequences of REDD+ and conservation? – A case study from Jambi, Indonesia	Jonas Hein
General discussion of panel session		

Deforestation and Land-use Change – Auditorium B

(chair: Patrick Hostert)

Abstract	Abstract title	Author (first)
Part I: Thursday 14-15.30		
18	High uncertainty of business-as-usual development undermines additionality in REDD	Daniel Müller
86	Telecoupling and global land-related greenhouse gas emission	Jasper van Vliet
14	Monitoring deforestation and forest degradation in dynamic landscapes of Southeast Asia using dense Landsat time series	Dirk Pflugmacher

(continues on next page)

Part II: Thursday 16-18.00		
75	The Utility of Landsat and MODIS Time Series for Detecting Forest Disturbance in Seasonal and Evergreen Forest of Southeast Asia.	Kenneth Grogan
76	Trajectories and drivers of land use changes affecting emission reduction options at subnational level in Indonesia	Atiek Widayati
79	A path towards a Green Economy in the Heart of Borneo: Landscape Assessment using Land Value Mapping for Low Carbon Development Plan in Kutai Barat	Arif Budiman
87	Rush for cash crops: Implications for pressure on land, access rights and REDD in Laos.	Thoumthone Vongvisouk

Land Tenure – Room 12

(chair: Christian Lund)

Abstract	Abstract title	Author (first)
Land Tenure: Africa – Wednesday 16-18		
80	The Dynamics of Shifting Cultivation in the Kilosa District, Tanzania: Trends and driving forces	Charles Joseph Kilawe
42	Governing REDD and Tenure Regimes: Theoretical and Practical Challenges in Weak Property Rights in Sub Saharan Africa	David Ross Olanya
17	Farewell to the Peasantry? Primitive Accumulation and the Agrarian Question(s) in sub-Saharan Africa	Mario Zamponi
28	Planning for Privatization: Land Use Planning and REDD+ Pilot Projects in Tanzania	Melis Ece
Land Tenure: Asia – Thursday 10.30-12.30		
51	Decentralizing forest management: forest tenure reform policy and its implementation in Yunnan province, Southwest China	He Jun
46	How REDD+ can articulate with changing tenurial and livelihood dynamics? An examination of REDD+ implementation in the Central Highlands of Vietnam	Phuc Xuan To
58	Rights to rocks: REDD+, indigenous peoples and forest tenure in Vietnam	Cam Hoang
55	Carbon-commodification as accelerated accumulation: New property regimes and land enclosures in the global south	Micheal Eilenberg + Steffen Dalsgaard

Local Realities and Impacts - Auditorium B

Abstract	Abstract title	Author (first)
Part I - Wednesday 11.30-12.30 (Chair: Suyanto)		
33	Forests, the landscape and what they mean for the wellbeing of the rural poor: Inferences for REDD+	Neil Dawson
69	Do remittances reflect livelihood typologies in Amazonian smallholder communities?: Drawing insights for REDD+	Rachel Carmenta
Part II – Wednesday 14-15.30 (Chair: Suyanto)		
49	Perceptions and management of land and resources in rural communities in the DR Congo: lessons for REDD+ implication	Moonen Pieter
72	Impacts of Joint Forest Management on Forest Condition: Case studies from Morogoro Region Tanzania	Daniel Ramløse Kapijimpanga
22	To be or Not to be: REDD, Cocoa, Forests and Farmers in Aowin District, Ghana	Darley Jose Kjosavik
Part III – Wednesday 16-18 (Chair: Atiek Widayati)		
40	Are Community Revolving Funds a Sustainable and Equitable Method of Slicing the REDD+ Pie? Insights from Mt. Elgon, Uganda	Lena Jeha
52	Participatory simulations to explore the impacts of REDD+ on local land use and livelihoods	Jean-Christophe Castella
31	Management Land use planning and agricultural investment in northern Laos: Effects on forests and on small-holders' access to forest land	Rikke Brandt Broegaard
62	The Socioeconomic Impacts of Rubber Expansion in Xishuangbanna, Yunnan Province, China	Qiaohong LI + Charlotte Filt Mertens
Part IV – Thursday 10.30-12.30 (Chair: Atiek Widayati)		
26	Using Social and Spatial Data, and Matching Methods to Assess National and Sub-National Social Impacts of REDD+ in Kalimantan	Pushpendra Rana
13	Effects of Compensation Methods and Distribution Channels of Benefits from a Contingent Forest Program to Local People WTP	Akhmad Solikin
24	Concept, evidence and implications of regime shifts of land systems in Southeast Asia	Zhanli Sun
88	Scaling up community collected data for REDD+ Safeguards: what are the key challenges and opportunities?	Helen Bellfield

Local Representation under Carbon Forestry – Meeting room 1

Abstract	Abstract title	Author (first)
Part I: Wednesday 16-18 Local Representation under Carbon Forestry (Chair: Maya Pasgaard)		
1	Promotion of Women and fragmentation of gender identities in the management of the Community Natural Reserve of Somone	Coumba Dem Samb
4	De-democratization and the formation of a class relation: from mangrove conservation to carbon credits in Niombato, Senegal	Rocio Hiraldo
6	Social and environmental tensions-Affirmative measures under REDD+ carbon payment initiatives	Rebecca Rutt
82	Examining local representation and participation of forest dependent communities in REDD+: A case study from Oddar Meanchey, Cambodia	Tania Nielsen
Part II: Thursday 10.30-12.30 Disempowering Local Representation: International Organizations and Local Democracy in REDD+ (Chair: Andreas Egelund Christensen)		
5	Climate, Carbon and Conflict: Coercing Conservation on Mt. Kilimanjaro	Martin Herbert Kijazi
8	From Recognition to De-recognition: Undercutting Representation Attempts by Technical Claims in Senegal's Forestry Project	Papa Faye
9	REDD Stakeholder Consultation– Symbolic or substantive representation in preparing Uganda for REDD?	Robert Mbeche
35	Symbolic democracy as social safeguards in REDD+: The case of the UN-REDD Programme in Nigeria	Emmanuel O. Nuesiri
Part III: Thursday 14-15.30 Disempowering Local Representation: International Organizations and Local Democracy in REDD+ (Chair: Andreas Egelund Christensen)		
38	The illusion of representation under REDD+ Readiness consultation process in Ghana (new title)	Emmanuel Marfo
81	Recognition and The Cultivation of Sub-National Authority from Above through REDD in Africa	Rene Oyono
General discussion of parallel session		

Participatory MRV – Room 12

(chair: Finn Danielsen)

Abstract	Abstract title	Author (first)
Thursday 16-18.00		
25	Community monitoring of forest carbon; costs and implications for tree species identifications	Theilade, I
84	Community monitoring for REDD+ in shifting cultivation landscapes	Michael Køie Poulsen
85	Opportunities for a Just REDD+: Linking Monitoring of Biodiversity with Capacity-Building and Empowerment of Local Communities	Teis Adrian
34	Identifying windows of opportunity for REDD+ through participatory land use modelling	Jean-Christophe Castella

Policy and Institutions: Designing REDD+ – Auditorium C

(chair: Daniel Müller)

Abstract	Abstract title	Author (first)
Thursday 10.30-12.30		
73	Why REDD+ Remains Elusive in Human-Dominated Miombo Ecosystems of South-Eastern Tanzania?	Baruani I. Mshale
20	Participatory Forest Management in Tanzania: Lessons for REDD	Mamta Vardhan
71	Local movement-International arguments: Preserving the last remaining urban green space in Bandung	Ari Nurman
67	Information and resource exchange in swidden communities of Indonesia, Lao PDR and Vietnam: Lessons for designing REDD+ architecture?	Maarit Kallio

Policy and Institutions: Outcomes of REDD+ – Auditorium C

(chair: He Jun)

Abstract	Abstract title	Author (first)
Thursday 14-15.30		
78	Multilevel Governance Architecture and Lessons for 3E+ Implementation of REDD+	Ashwin Ravikumar
70	Fair and effective? The prospects of Reducing Emissions from Deforestation and Degradation in Northern Cambodia	Maya Pasgaard
32	REDD mess in Laos: story of an emerging institutional setup	Thoumthone Vongvisouk

Policy and Institutions: Governance – Auditorium C

(chair: He Jun)

Thursday 16-18		
37	Forest rights: the hard currency of REDD+	Jens Friis Lund
60	Community forest governance for climate change in Indonesia	Gamma Galudra
48	Coordinating Conventions in the Voluntary Carbon Offset Network	Cary Yungmee Hendrickson
59	Property Rights and Natural Resource Governance: Extending the conceptual analysis in times of REDD+	Thomas Sikor

Policy and Institutions: Climate Change Policy - Meeting room 1

(chair: Daniel Müller)

Thursday 16-17.30		
15	A critical analysis of the role of the land sector in climate mitigation	Kate Dooley
23	Climate impacts increase uncertainty in assessing terrestrial climate policies	Florian Humpenöder
61	A missing link between climate change mitigation and adaptation in agriculture and forest projects?	Rico Kongsager

KEYNOTE TALKS

Sandra Brown – Tuesday, July 1 at 16.00-17.00 in Auditorium B

Measuring and Monitoring Carbon Stocks of Tropical Forests: Local to Global Scales

The interest in monitoring and estimating the carbon stocks of tropical forests has exploded globally driven mostly by the potential opportunities for mitigating greenhouse emissions if tropical forests could be managed differently. In my presentation I will give a brief history of the research and progress on this topic that has enabled us to improve the accuracy and certainty of estimates of the carbon stocks of tropical forest vegetation at the project to national scales. I propose that very few technical challenges remain in estimating the carbon stocks in tropical forest vegetation at any scale with the certainty needed for policy makers and for payment-for-performance given the methodologies and guidelines developed by the IPCC and other sourcebooks; the large number of satellites and computing power to interpreting the imagery; and the large increase in resources from bi- and multi-lateral agreements for providing technical support and enhanced in-country capacity.

Sandra Brown has been with Winrock International since 1998, where she is now Chief Scientist of the Ecosystem Services Unit. Prior to that she was a Professor in the Forestry Department at the University of Illinois in Urbana Champaign. She has a PhD in systems ecology from the University of Florida, a MS. in engineering science from the University of South Florida, and a BS in chemistry from the University of Nottingham. Dr. Brown has successfully led more than numerous projects on estimating the carbon dynamics of the world's forests, particularly tropical forests; conducting feasibility studies for climate change mitigation programs in the agriculture, forestry and land use sectors; developing carbon/GHG accounting systems to meet requirements under REDD+ (reference levels and forest carbon monitoring systems, and apprising a variety of US governmental, multilateral, and non-profits on deforestation issues, carbon trading, and carbon measurement and monitoring systems. She has published more than 200 peer-reviewed publications in scientific journals and books. She served as a co-convening lead author for chapters in five UNFCCC IPCC Reports (and for which she received recognition from the Nobel Prize winning IPCC in 2007).

Esteve Corbera – Tuesday, July 1 at 17.00-18.00 in Auditorium B

The "will never be" commodity? The uncooperativeness nature of REDD+ offsets and three governance mismatches

In critical geography, the concept of "uncooperative commodity" relates to the underlying spatial, social, and biophysical complexities of some resources that render them contested and difficult to commodify. In this presentation, I rely on this concept and environmental governance theory to argue that existing forest-carbon and future REDD+ offsets can as such be considered a new commodity the properties of which complicate the process of complete commodification, understood from both neoliberal and political economy perspectives. Guided by existing literature and attempts to commodify forest-based carbon in Mexico and Tanzania, both at project and national levels (i.e. REDD+ strategies), I suggest that REDD+ offsets "uncooperativeness" can be explained by three critical governance mismatches: first, a problem of fit between the ecological and social uncertainties of forest-carbon "production" and two critical requirements in forest-carbon commodification, namely additionality and permanence; second, a problem of transferability of "carbon production" knowledge, accounting and resource management practices within and across governance scales, which often lead to conflict and legitimacy crises; and third, a problem of interplay with land-use related policies and markets, which may continue to shift landowners' incentives away from carbon offset "production". These three mismatches do not invalidate debated concerns about forest carbon commodification but contribute to downplay the possibilities of seeing in the short term the development of a global REDD+ forest-carbon market that results in a large-scale dispossession of forest ecosystems in the global South.

Esteve Corbera is a Senior Research Fellow at the Institute of Environmental Sciences and Technology (ICTA), Universitat Autònoma de Barcelona, and a Research Associate at the School of International Development, University of East Anglia. His research focuses on the governance of land-use management options for climate mitigation across scales, including analyses of climate-policy and biodiversity conservation related instruments, such as Reducing Emissions from Deforestation and Forest Degradation (REDD) and carbon offset projects, and more recently also of large-scale agriculture for biofuels production. He is a member of the Editorial Boards of the journal Global Environmental Change and the Journal of Peasant Studies, and has been both a lead and a co-author in the 5th Assessment Report of the Intergovernmental Panel on Climate Change.

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Nancy Lee Peluso – Wednesday, July 2 at 09.00-10.00 in Auditorium B

The Plantation and the Mine: Order and Chaos in Conversion Landscapes of West Kalimantan, Indonesia

In Indonesia today, both plantations and mines are critical contributors to the nation's economy, and to local, regional, and national politics. They are also critical components of conversion landscapes, replacing highly diverse forests and agro-forests with simplified and polluting land uses. Though both kinds of land uses operate at the edges of legality, plantations are often said to inscribe in the landscape the kind of political and ecological "order" preferred by colonial and contemporary governments, small-scale gold mining is glossed as chaotic and difficult to control, and has been rendered illegal in many places. This paper will compare the property and labor dynamics of small-scale gold mining and oil palm plantations in the hinterlands and expanded urban boundaries of Singkawang, West Kalimantan. Both are affecting smallholders' land claims and land uses, property and territory-making practices, and their positioning as citizens of Indonesia. I examine the development of new property relations in small-scale mining sites with varied histories and the ways in which these property relations are simultaneously constituting entrepreneurial Indonesian citizens, re-racializing territory, and destroying their lands and their bodies. In comparison with the effects of advancing oil palm plantations on smallholders in these same urban and peri-urban areas, however, the "order" of plantations appears much less desirable.

Nancy Lee Peluso is a professor of Forest Policy at the University of California Berkeley. Nancy studies the social processes that affect the management of land-based resources, using ethnographic, historical, and other broadly sociological research methods. Her work explores various dimensions of resource access, use, and control, while comparing and contrasting local, national, and international influences on management structures and processes.

Frédéric Achard – Wednesday, July 2 at 10.30-11.30 in Auditorium B

Tropical deforestation and related carbon losses from 1990 to 2010

Since the early 1990s the European Commission's Joint Research Centre (JRC) monitors the tropical forests with remote sensing (TREES Project) with the goal of reducing uncertainties in measuring forest change and related carbon emissions. In the third phase of the project, launched in 2007, the extent and changes of forest cover (deforestation and forest regrowth) in the tropics are assessed for the two last decades (1990-2000 and 2000-2010) based on a sample of 4,000 units of 10km×10km size. Forest cover is interpreted from satellite imagery at 30m×30m resolution. Humid forests account for 64% of the total forest cover in 2010 and 54% of the net forest loss during second study decade. Our estimates of forest area change are significantly lower as compared to national survey data. Forest cover changes are then combined with pan-tropical biomass maps to estimate carbon losses. Losses of forest cover and other wooded land cover result in estimates of carbon losses which are similar for 1990s and 2000s at 887 MtC y^{-1} (range: 646 – 1238) and 880 MtC y^{-1} (range: 602 – 1237) respectively, with humid regions contributing two thirds. We reconcile recent low estimates of carbon emissions from tropical deforestation for early 2000s. Carbon losses from deforestation represent circa 10% of Carbon emissions from fossil fuel combustion and cement production during the last decade (2000-2010). Our estimates of annual removals of carbon from forest regrowth at 115 MtC y^{-1} (range: 61-168) and 97 MtC y^{-1} (53-141) for the 1990s and 2000s respectively are five to fifteen times lower than earlier published estimates.

Key related reference: Achard F., Beuchle R., Mayaux P., Stibig H.-J., Bodart C., Brink A., Carboni S., Desclée B., Donnay F., Eva H.D., Lupi A., Raši R., Seliger R., Simonetti D. Determination of tropical deforestation rates and related carbon losses from 1990 to 2010. Global Change Biology.Accepted 01 April 2014, DOI: 10.1111/gcb.12605. http://onlinelibrary.wiley.com/doi/10.1111/gcb.12605/abstract

Frédéric Achard is a research scientist with the Joint Research Centre (JRC), Ispra, Italy. Having first worked at the Institute for the International Vegetation Map (CNRS/University) in Toulouse, France, he later became a seconded national expert from the French Ministry of Agriculture and Forest to the JRC in Ispra. Having joined the JRC in 1992, he started research activities in the framework of the "TRopical Ecosystem Environment observations by Space" (TREES) project. He coordinated the second phase of the TREES project (1997-2001) and carried out from 2002 to 2006 activities of forest cover monitoring in boreal Eurasia. F. Achard was leader of the TREES-3 project (2007-2012) which led to updated estimates of forest cover changes in Tropics. As present leader of the FOROBS project his current research interests include the development of Earth observation techniques for the monitoring of tropical and boreal Eurasia forest resources, and the assessment of implications of forest cover changes on the global carbon budget. Frédéric Achard graduated with a Masters degree in Image Processing from Strasbourg University in 1986 and received his Ph.D. degree in tropical ecology and remote sensing from Toulouse University, France, in 1989. F. Achard current research projects include the development of Earth observation techniques for global and regional forest monitoring, the assessment of the implications of forest cover changes in the Tropics and boreal Eurasia on the global carbon budget, and the improvement of regional forest cover maps. He has co-authored over 70 scientific peer-reviewed papers in scientific journals with more than 3,000 citations.

<u>Arun Agrawal</u> – Thursday, July 3 at 09.00-10.00 in Auditorium B

Do material incentives to enhance environmental outcomes work?

A generation of programs to improve sustainability and simultaneously bring about development are founded on the assumption that material benefits to poor people will make them likely to think and act in environmentally more responsible ways. Using a before-after, control and intervention research design for our research in the Indian Himalaya, we assess whether higher level of material incentives in sustainable development projects make participants more positively inclined towards the environmental resources and to act in ways that conserve resources. We focus on forest resources and find that those who participate in such projects have less environmentally positive attitudes towards forest resources compared to those who do not. Further, participants use more forest resources after participating in project activities. Specifically, participation in project meetings undermines environmental motivations and behavior. Small amounts of private benefits leave motivations and behavior unaffected. Collective benefits from the project improve environmental motivations and actions. We explain the results by examining how material incentives interact with intrinsic *vs.* extrinsic motivations of participants. We explore the implications of this work for projects that seek to improve resource outcomes by paying people.

Arun Agrawal is a professor at the School of Natural Resources & Environment at the University of Michigan. His research and teaching emphasize the politics of international development, institutional change, and environmental conservation. He has written critically on indigenous knowledge, community-based conservation, common property, population and resources, and environmental identities. His recent interests include adaptation to climate change, urban adaptation, REDD+, and the decentralization of environmental governance. He coordinates the International Forestry Resources and Institutions network, and is currently carrying out research in central and east Africa and South Asia.

<u>Christine Padoch</u> – Friday, July 4 at 09.00-10.00 in Auditorium B

Urbanization, multilocality, remittances and their effects on forests and communities

Rural-urban migration and the growth of urban areas have historically had major impacts on rural environments, including forests. Unlike in previous times and other places however, many families in the forested tropics now engage in circular rather than direct rural-to-urban movement and many previously rural households maintain both urban and rural residences. The widespread remittance of money from emigrant workers to households is now among the most significant of global capital flows. This presentation addresses several issues arising from these movements and flows, including what is known about how remittances are invested and what may be their effect on forest cover and management, as well as how multilocality changes how landscapes are managed, including the "urbanization" of rural areas, and the "ruralizaton" of urban spaces. Finally the presentation explores how mobility may serve as an adaptation strategy, as well as how they might affect climate change mitigation projects and plans.

Christine Padoch is an anthropologist and the Director of the Forests and Livelihoods Programme at CIFOR. She has spent more than 35 years carrying out research on smallholder patterns of forest management, agriculture, and agroforestry in the humid tropics, principally in Amazonia and Southeast Asia.

Arild Angelsen – Friday, July 4 at 11.00-12-00 in Auditorium B

Is REDD+ a good idea impossible to implement?

REDD+ was a proposal to create a multi-level Payment for Environmental Services (PES) system. But REDD+ has been modified significantly since it was launched in 2007, and risks losing the original characteristics about result-based payments and national-wide implementation. The change is partly due to political games, but also because the PES idea is very challenging to implement both technically and institutionally. Still, the idea of paying for results has survived, and remains a key element in both REDD+ projects and national programmes. Recognizing the challenges in implementing a result-based system is a first step in making REDD effective. Still the question remains how imperfect the system can be and still have an impact on emissions and local livelihoods.

Arild Angelsen is professor of economics at the Norwegian University of Life Sciences (NMBU) and a senior associate at CIFOR, Indonesia. Over the past 20 years he has conducted extensive research into the causes of tropical deforestation and its interaction with poverty, tenure and government policies. Recent work has investigated how Reducing Emissions from Deforestation and forest Degradation (REDD+) can be included in a global climate regime. He has broad field experience from Southeast Asia and eastern Africa, and has lived in Uganda, Indonesia, Australia and the USA.

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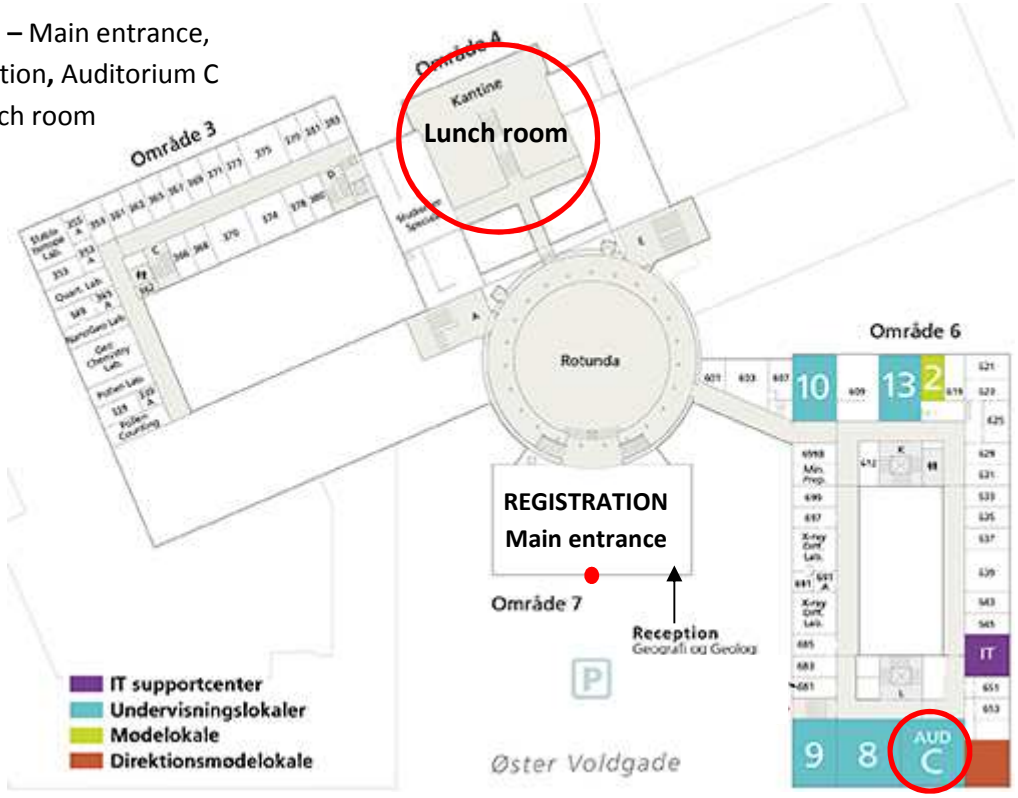
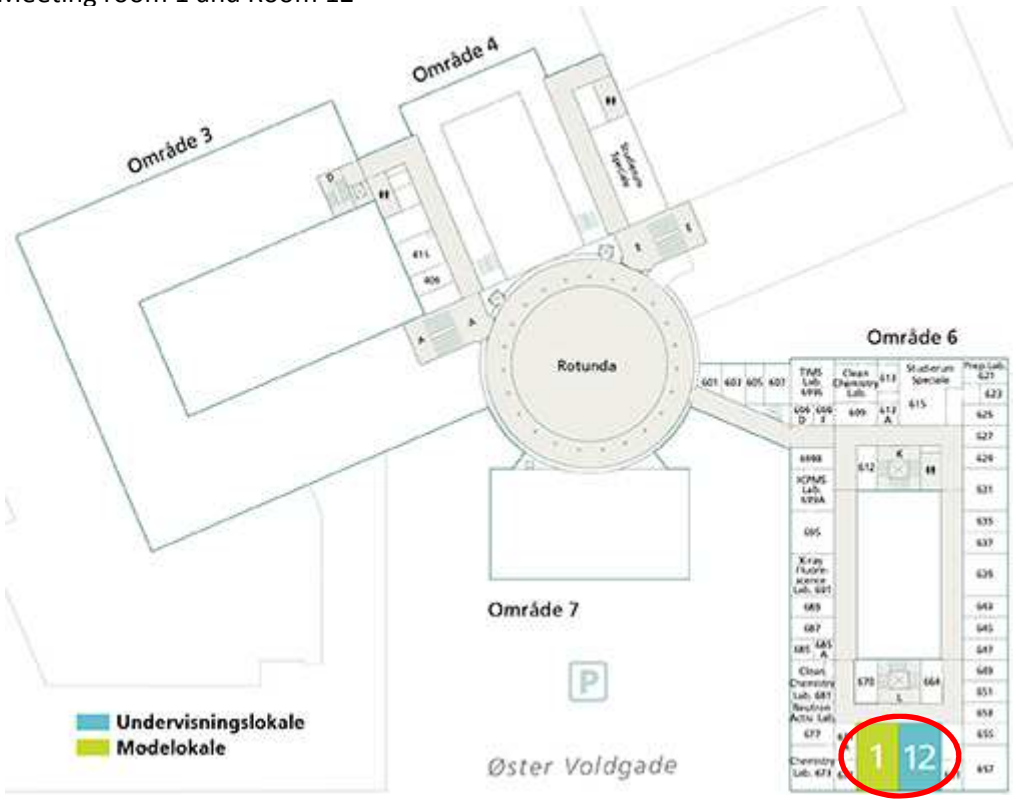
Map of conference venue

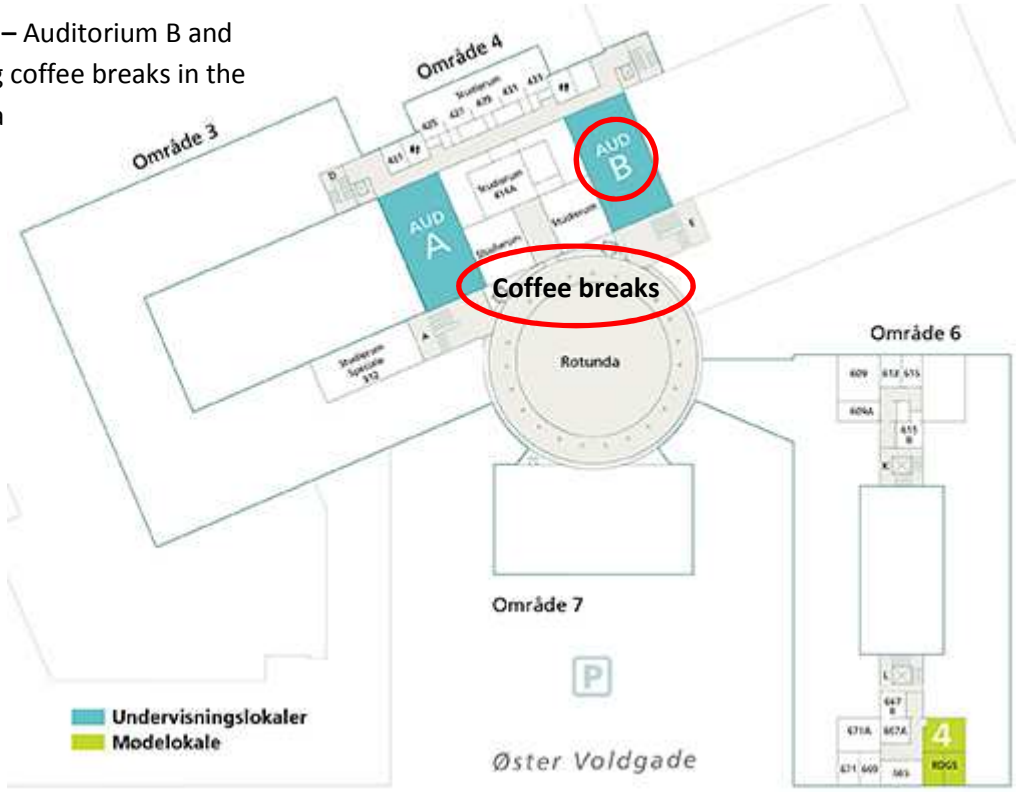
LEVEL 0 – Main entrance, registration**,** Auditorium C and lunch room



LEVEL 2 – Meeting room 1 and Room 12



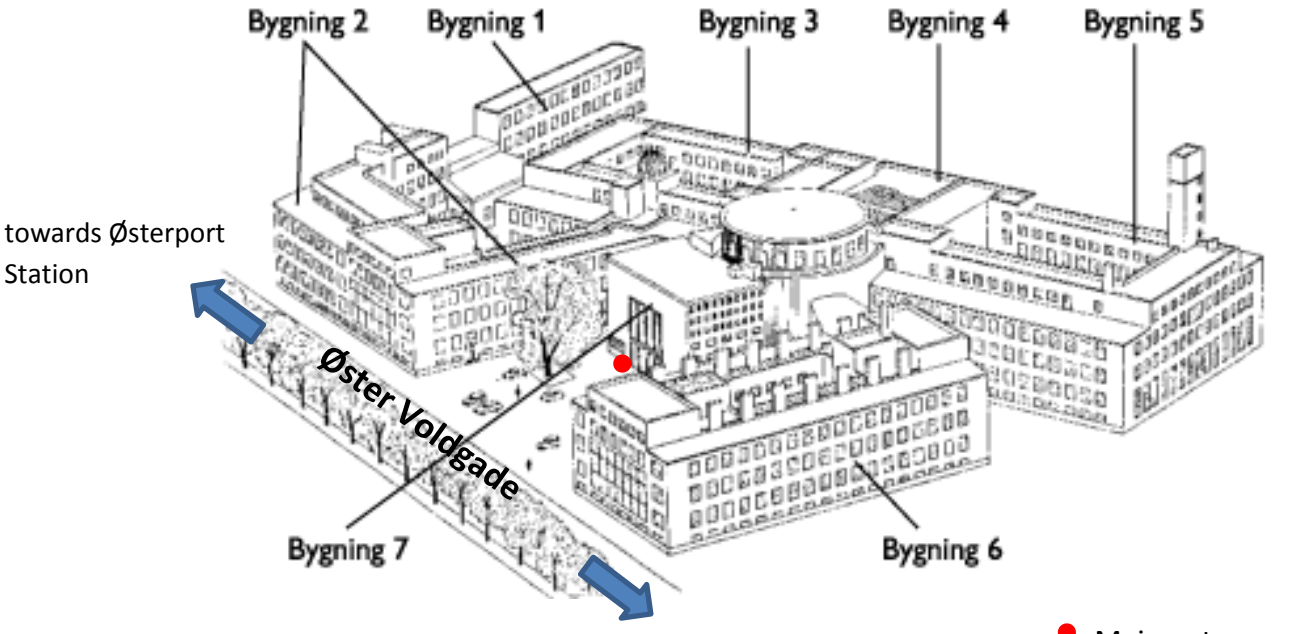
LEVEL 3 – Auditorium B and morning coffee breaks in the Rotunda



Map of Copenhagen – venue location

Venue address: Øster Voldgade 10, 1350 Copenhagen K

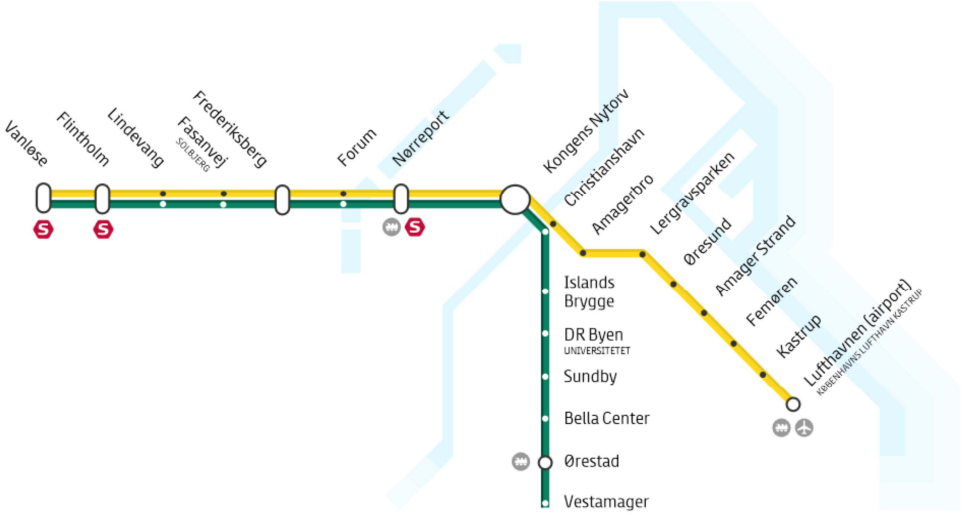
Conference venue (red circle) – Train stations (blue circles) – Hotel Chr. IV and Ibsens Hotel (black spots)



Map of Copenhagen City Center

Conference venue (red circle) – Train and metro stations (blue circles) – Cabinn City Hotel (black spot)
Conference dinner (Toldboden, black spot)

Map of S-trains and metro lines



COLLECTION OF ABSTRACTS FOR CARBON-LAND-PROPERTY CONFERENCE

Copenhagen, July 1-4, 2014

FINAL VERSION

1) Coumba Dem Samb; Rocio Hiraldo Lopez Alonso; Papa Faye; Poonam Jusrut

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Promotion of Women and fragmentation of gender identities in the management of the Community Natural Reserve of Somone

The study examines a project aimed at conserving mangrove swamps in order to reduce carbon emissions. In Senegal, community natural reserve management is legally under the jurisdiction of elected local governments. But, in the case of community Natural reserve of Somone, Senegal's National Park Service, in the name of " and women's involvement in the environment management" and evoking the national policy to promote women's engagement in development, chose to constitute a women's group to manage and protect the reserve. The big beneficiaries of the benefits of the reserve were the leaders of these women's groups and not the members. The men and youth in the villages, however, felt excluded and angry. So did many women who were not benefitting from the arrangements. The elected rural council president was also frustrated – having been excluded from decision making in a matter legally within his jurisdiction. The result was that the village was deeply divided. Men disengaged from management of the reserve. The result was far from democratic and may also not be sustainable.

3) Rocio Hiraldo; Coumba Demb Samb; Papa Faye; Poonam Jusrut; Rocío Hiraldo

PANEL PROPOSAL

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Council for the Development of Social Research in Africa

Local Representation under Carbon Forestry: Implications of Interventions in Senegal

Forestry-related carbon-offsetting projects are spreading across Africa, transforming existing governance structures around forest management. These changes are reshaping rural citizens' ability to access the resources they depend on. While these interventions are being promoted as locally-beneficial and contributing to poverty reduction, preliminary studies are bringing these promises into question. This panel examines the relation between democracy at the local level and forest management with evidence from four case studies of forest resource management and conservation in Senegal. The four papers are part of a multi country-research programme on the democracy implications of the politics of choice and empowerment of local community representatives in forestry-related interventions. Case study 1 examines the implications of the choice and recognition of women's groups in the management of La Somone community-based protected area for local community representation. It suggests that the choice of female groups and the privileges that are given by the national conservation service have resulted in the instrumentalization of women and the relations of upward accountability. The processes of choice and recognition of this particular group within edge-villages have produced fragmentation of gender-based identities: between females themselves and between female and male. Case study 2 shows that while state-led decentralization programmes supported by donors have created income-generating opportunities for local populations

in the Tambacounda region, they have triggered another cycle of elite capture. This case reveals how the mix of institutions recognized to implement forestry–related policies and projects have contributed to building the capacity of local communities to manage and use forests alongside creating a localization of unequal access to the resource. Case study 3 suggests that local governments are no longer passive agents when facing exclusion by donor-led interventions being used by the Forest Department to recentralize forestry management though technical knowledge. It shows that the increased local awareness resulting from the project intervention provided more political and economic incentives to engage in the management of forests and control of institutions thereof through "derecognition" (withdrawal of power and resources already allocated by a different agent) of project's institutions. Case study 4 argues that villagers' exclusion in mangrove conservation interventions cannot be detached from the processes through which they are drawn into a class position of producers. Conservation actors through local intermediaries exclude villagers attempt to exploit villagers' labour-power for the production of conservation-related commodities, including services provided in ecotourism hotels and carbon credits.

4) Rocio Hiraldo

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De-democratization and the formation of a class relation: from mangrove conservation to carbon credits in Niombato, Senegal

This paper examines the local democracy effects of a mangrove reforestation carbon offsetting project implemented in Niombato, Senegal by paying attention to the processes through which the relations of carbon credit production are forged. The case shows a basic incompatibility between democracy and class-based production of two conservation-related commodities, services provided to eco-tourists and carbon credits. It demonstrates that conservation actors are able to exploit villagers' labor-power by excluding them from the decision-making processes about mangrove conservation and its related economy. This process reflects how villagers are drawn into a class position of producers but not under conditions of their own choosing. The paper also shows how conservation actors and their local intermediaries strategically relate to state power, seeking its support to back their interests while delegitimizing the local government when it claims power over the conservation economy. By remaining indifferent towards the on-going exclusion of villagers, donors and state actors have also contributed to this process of class formation.

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The Council for the Development of Social Science Research in Africa (CODESRIA)

Climate, Carbon and Conflict: Coercing Conservation on Mt. Kilimanjaro

Given climate change and carbon-forestry politics, forest protection policies and laws have been instituted for Mt. Kilimanjaro forests, in Tanzania. The researcher "studies-up" (a la Nader 1974) these protectionist interventions. The objective is to understand the decisions and choices of high-level actors who designed and/or executedthese interventions. Studying up was accomplished via analysis of laws, program and project documents, and interviews of actors in central and regional government, donors and large NGO bureaus involved. The research asks whether and how these actors took local representation into account in their choices of intervention policies, laws, and practices. Which llocal institutions did they choose to work with, and therefore to whom did they transfer decision making powers, resources and support? Then, how did these choices affect local democratic representation? Local representation was viewed through the observed inclusion and/or exlusion of local people in decision making and access to forest resources. The study reveals that high-level actors' claim that the protectionist policies would benefit the public at large due to the national and global significance of Mt. Kilimanjaro forests. Yet, the institutional choices, organizational workings, and actions of these agencies are much more tailored toward serving interests of the central government, plus state and local elites. Needs and interests of local peasants are excluded by the discourse that portrays them as poor stewards of the environment. This framing is used to exclude local populations from decision-making and from accessing conservation benefits. Executive directives rather than democratic deliberations dominated decisions, reinforcing upward accountability without downward accountability to villagers. This partly explains the widely observed resistance of villagers to their exclusion from accessing local resources by coercion. Their resistance is manifest as protests, blockades, arson and sabotage. The paper does not simply add to calls for a more socially just conservation. Rather it suggests that conservationists may achieve this goal by incorporating the often ignored issue of local democratic representation in conservation.

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Social and environmental tensions-Affirmative measures under REDD+ carbon payment initiatives

REDD+ is a mitigation measure against global climate change that offers payments to developing countries based on the increased volume of forest carbon. It has been argued that affirmative measures should be adopted to ensure that communities, particularly the socially disadvantaged groups among them, receive payments not only to address inequities but also for resource conservation. Drawing on a case study of a NORAD pilot project in Nepal, this paper investigates how affirmative measures adopted under the project affect different social actors and their perceptions and

behaviors in relation to forests. Our case highlights the risk that the mere application of affirmative measures may give rise to difficult social and environmental tensions. Thus, this paper calls for such measures to effectively incorporate local perspectives in their designs and to be reflective, by allowing for regular monitoring of impacts and modifications of the measures if adverse effects are detected.

7) Raymond Achu Samndong

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Local Citizenship in Forestry and Development Interventions in Bikoro Territory (Democratic Republic of Congo)

Substantive citizenship is the 'ability' of an individual to influence those who govern. In order to assess this 'ability', this study examined the powers of sanction possessed by individuals or groups and the accountability mechanisms at their disposal in three villages in the Bikoro Territory of Democratic Republic of Congo (DRC). More specifically, the paper examined power relations and the accountability of local authorities involved in forestry and development interventions, in order to understand the effects of these interventions on substantive citizenship. The study found that forestry and development agencies chose to partner with identity-based customary authorities and interest-based non-governmental organizations. These chosen institutions are not directly accountable to the local people, but their partnership with higher level forestry and development agencies gave them public powers over forest resources. This placed them in a position of governing those who use these public resources. While these empowered local institutions are open to some local influence, local people lack the ability to substantively influence the decisions made by these chosen local institutions – hence they cannot fully engage as citizens. This case study suggests that recognizing identity and or interest-based local institutions, while ignoring residency based institutions, by agencies currently promoting carbon forestry in DRC, would exacerbate existing unequal power relations and further narrow the formation of a broader residency-based citizenship.

Keywords: citizenship, influence, forestry, identity, REDD+.

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From Recognition to Derecognition: Undercutting Representation Attempts by Technical Claims in Senegal's Forestry Project

Recognition by state or state bodies and large environmental or development organizations can strengthen local authorities in representing local interests in REDD-like and carbon interventions. On the other hand, derecognition, by these same central actors, actively and simultaneously fetters and

disempowers representative local authorities. Phase-I of Senegal's largest donor-supported decentralized forest management project created and reinforced village committees: an act of 'recognition'. These committees were accountable to the Forest Service-directed project. During the two-year intermediary period between the first and second phases, elected local governments dissolved these project-assigned committees, complaining of a lack of non-downward accountability, non-transparency, circumvention of decentralization laws, and fragmentation of local governments' authority. The dissolution of the committees is a political form of "derecognition." With this derecognition, the local government created management committees under its own authority, thus improving transparency in the management of benefits and ensuring reinvestment of income in local priorities, and also fighting for the rule of law. Another way in which local government fought against fragmentation trends was by consolidating power under one elected local authority. We call these efforts 'representation attempts'. In Phase-II, the project and foresters in turn dissolved, or "derecognized", the local government committees, thus disregarding local government's representation attempts. The project created private associations accountable to the Forest Service and provided them with access and decision-making power on the pretense of enforcing the technical prescriptions defined by the Forest Service in the Management Plan. Thus, Senegal's Forest Service used this 'participatory' project to impose technical claims that legitimate the derecognition of representative authority and recentralize forest management despite decentralization laws. Discourse on charcoal supply and sustainability gives validity to the imposition of such techniques. This is a technical form of derecognition. The project helped the foresters impose technical claims to nullify representation attempts. The paper tells this story of recognition and technical derecognition of representative local authority. It also tells of local governments that resisted, through political recognition —creation of new authorities— and political derecognition —dissolution of project-led authorities—, when economic and political stakes of resources became tangible in a manner that could influence their representativeness.

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Responsive Forest Governance Initiative

REDD Stakeholder Consultation– Symbolic or substantive representation in preparing Uganda for REDD?

Many developing countries are joining REDD+ (Reducing Emissions from Deforestation and Deforestation) through the World Bank's Forest Carbon Partnership Facility (FCPF) or UN REDD programme. To receive the REDD+ finance, interested developing countries must develop REDD+ Preparedness Proposals (R-PP), through an 'effective and participatory' stakeholder engagement process. The discourse of the World Bank is that by actualizing the stakeholder consultation expressed commitments, the interests and aspirations of all the stakeholders and in particular indigenous forest-dependent people will be safeguarded. Uganda completed (2009-2012) its R-PP through what was described as an 'inclusive' and 'highly participatory' process. This paper examines the choice of institutions and the extent to which the consultation process in the R-PP preparation created conditions for substantive or symbolic representation. The study found that the design process was largely controlled by 'experts' from NGOs and Ministry headquarters. These central and upwardly

accountable institutions were recognised largely based on efficiency and delivery of outputs despite expressed intentions of recognition for representation. Also, the local people had not authorized the NGO or experts to speak on their behalf, nor did the system set up to inform the process have broad-based accountabilities. Thus, R-PP representation was not 'democratic', suggesting that democracy goals are more symbolic than substantive. Thus R-PP development in Uganda represent the emergence of governance arrangements which attenuate citizenship of local groups- defined as a process through which individuals and groups formulate and claim new rights or maintain existing ones.

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Motivations and attitudes towards supplying biomass for energy among European forest owners

The European Commission (EC) has set a legally binding target to cover at least 20% of EU's total energy use from renewable sources in 2020. Today woody biomass is the most important source of renewable biomass in the EU and the EC expects the use of biomass for energy in the EU to double between 2010 and 2020. Several studies suggest increasing supply of woody biomass in response to pricing and market mechanisms as the demand increases. We tested the hypotheses that European forest owners' attitudes towards supplying woody biomass are reflecting its profitability and that the forest owners' attitudes are positive so that the EU 2020 target can be met. Using survey data collected in 2010 from 800 private forest owners in a latitudinal gradient across Europe our results show that the respondents' attitudes towards supplying woody biomass for energy remains unexplained by direct responses to changes in prices and markets. Furthermore, our results imply that the amounts of woody biomass for energy requested to meet the EU 2020 renewable energy target cannot be expected to be supplied by European private forest owners, at least if stemwood is to play the important role as influential studies suggest.

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CO2 and agrarian change: oil palm, emissions and certification in Mesoamerica

The global demand for commodities contribute to climate change through extensive land clearing in the South for high-value crop production. Oil palm expansion in tropical forest zones has become a contentious issue. Growing markets cause environmental problems but market-based mechanisms such as certification are the professed solutions. Market-based approaches run the risk to overlook inequalities in agrarian structures and diversity in trajectories of agrarian change. This paper uses a political ecology perspective to analyse CO2 emissions by oil palm expansion and possible mitigation effects through certification; this perspective focusses attention on class differentiation and the

dynamics of agrarian change. Data collected through semi-structure interviews and a questionnaire-based survey (n=300) in two regions in Mexico and one in Guatemala were used to feed the greenhouse has emission (GHG) model of the Roundtable of Sustainable Palm Oil (RSPO). The results show low GHG emissions across rural classes involved in oil palm expansion. Oil palm has mostly been planted in degraded pastures where cattle were often key to finance oil palm adoption especially by poor and middle-income peasants. Land tenure also plays a critical role with most land in study regions held by peasants who lack the capital for massive deforestation or to intensify production. Both ecological (i.e. pasture degradation) and social processes (i.e. land tenure and associated struggles) shape CO2 emissions by commodity production pointing to the importance of considering grounded processes of agrarian change. Our cases stand in contrast with Petén in Guatemala with its predominance of large producers, land concentration and high deforestation rates. Therefore, certification schemes should be able to distinguish "emission hotspots" from regions with low emissions.

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Effects of Compensation Methods and Distribution Channells of Benefits from a Contingent Forest Program to Local People WTP

Forest provide many benefits at the local, national, and global levels. At many situations, however, benefits provided by forests are received by global audience but the costs are mostly accrue for local people. One way to solve the gap is by providing funding for people who conserve the forests, either in terms of integrated conservation and development project (ICDP) or payment for environmental services (PES). This study investigate effects of compensation methods and distribution channels on local peopke willingness to pay (WTP). To achieve the objectives, a contingent valuation method (CVM) surveys were adminsitered to local people living in or around a watershed in Berau District, East Kalimantan, Indonesia. The contingent scenarion posed to respondents was a project aimed at avoiding deforestation and forest degradation. Respondents were informed that they could receive compensations if the proposed project succeeds. Thus in the interviews respondents could choose some alternative compensation methods (i.e. children education, health services, job, adult training, cash transfer, alternative living, and village forests) and distributional channels (i.e. via family, community, village, NGO, or cooperation among the actors) to distribute benefits from the program. The results show that three compensation methods (i.e. education, health facilities, and job) are favored by respondents. In addition, education education and health facilities variables are significant and positively determine WTP. It means that respondents who prefer education and health facilities are more willing to pay. On the other hand, variables of distribution channels, i.e. community, village, or cooperation among actors, have negative signs for WTP. It indicates that respondents whi prefer the above mentioned distribution channels have lower WTP compared to self-manage via family. Implications of these results for REDD projects are twofolds. First, to garner supports from local people, REDD benefits should be distributed in long term benefits. It should be noted, however, that local people are rational and pragmatic. For example, they rejected compensation in small cash transfer. In addition, compensation types of conservation project should be chosen with care. It is

indicated that respondents are prefer palm oil plantation rather than sustainable forestry, a result which may contradicts to biodiversity objective of REDD. Second, distribution channels of REDD benefits should consider local people' trust toward the channels. It is clear that local people distrust of timber concessionaires and chose cooperation among actors as preferred channel, which may indicate a need of check and balance.

14) Dirk Pflugmacher; Kenneth Grogan; Sithong Thongmanivong; Patrick Hostert

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Monitoring deforestation and forest degradation in dynamic landscapes of Southeast Asia using dense Landsat time series

Improved monitoring of deforestation and forest degradation is a key requirement for on-going climate mitigation efforts such as REDD+. In recent years, much progress has been made towards developing remote sensing methods and protocols for mapping deforestation in forest frontier landscapes. However, monitoring tropical forest degradation has been a far bigger challenge. Traditional bi- and multi-temporal change detection methods do no adequately capture the subtle or rapid spectral changes associated with forest degradation processes in highly temporal dynamic processes. However, forest degradation in mountainous Southeast Asia often occurs in regions characterized by long land-use histories and fine spatial mosaics of natural forest vegetation, fallows, and agriculture. In this study, we use dense Landsat time series between 1985 and 2012 to characterize and map forest changes caused by deforestation and forest degradation in dynamic landscapes of Southeast Asia. We show that long historic and frequent observations improve detection of subtle and dynamic change processes. Our analysis of annual change data indicates that historical baselines based on few, periodic observations are unreliable, and could lead to very different trend estimates in these regions. The study demonstrates the potentials and limitations of remote sensing for monitoring tropical forests in dynamic landscapes.

15) Kate Dooley

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A critical analysis of the role of the land sector in climate mitigation

Agriculture, forestry and other land use emissions (AFOLU) are responsible for up to 30% of anthropogenic emissions, and are therefore an important part of the international effort to tackle climate change, and the ongoing climate negotiations. The land use sector was included in the Kyoto Protocol via land use, land use change and forestry (LULUCF), under accounting rules that critics suggest allowed obfuscation of genuine emission reductions and removals. Inclusion of the land sector in a new climate treaty must maximize mitigation potential from both land based and industrial emissions to avert the worst of the climate crisis. Agriculture (including crop and livestock production, forestry and associated land use changes) and deforestation and forest degradation (forest loss) make up the majority of land based GHG emissions. While the ratio of land based to industrial emissions has decreased over the last decade due to increases in industrial emissions, current estimates suggest that emissions from deforestation and forest degradation are declining (to around 10%), and emissions from agriculture are increasing (currently 14%). Agriculture now represents a larger portion of GHG emissions than deforestation. This has seen a concurrent shift in policy focus towards the role of agriculture in climate mitigation, with a large number of initiatives and projects focused on soil carbon sequestration. This paper finds that the policy focus on soil carbon, at the international level and in certain countries, is disproportionate to the mitigation potential of soil carbon sequestration. Based on an overview of the literature on accounting for emissions reductions in forests and in cultivated organic soil, the paper finds that emission reductions from these two sectors is more severely limited than their combined contribution to global GHG emissions would indicate, and that uncertainties associated with measurement and analysis have the potential to be greater than actual emission reductions. The paper concludes that in order to maximize the potential of emission reductions and removals from particular AFOLU activities (deforestation and soil carbon in this case), and to avoid counterproductive errors, accounting frameworks and policy incentives must be set within a realistic assessment of the ability to measure, report and verify (MRV) emission reductions and removals (MRVability). Incentives targeted at sustainable land use management practices, in support of traditional and customary land use, may in the long run achieve greater stability of land based carbon stocks than a pure mitigation focus.

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Agrarian Transformation and Citizenship in Malawi: the Resurgence of Land Reclamation Movements and the Political Economy of the 'Non-Change'

In Malawi, as in many other Sub-Saharan African (SSA) countries, contestations over land are central to the negotiation of citizenship and processes of state formation. This paper explores the (re)emergence of land reclamation movements in southern Malawi and contextualises their claims in

the historical and political background to the question of land. The article discusses the case of the Peoples Land Organization in Thyolo, its actors and orientations, and argues that the resurgence of movements for land reclamation is the inescapable result of a political economy of the non-change that since the colonial period reproduced a dual agrarian system. The analytical framework draws on the debate between agrarian transformation and state formation. This relationship is regarded from the perspective of two overlapping logics of territorialisation and commoditization, describing how people and social groups use power to validate opposing claims to resources. The articulation of these logics over a historical and political context manifests through specific configurations of questions of land, labour and capital.

The case analysed shows that claims to land are constructed by means of opposing discursive repertoires based on a Neo-Malthusian narrative, as well as on radical counter narratives drawing on the colonial struggle for social and economic enfranchisement. While the former attempts to depoliticise the question of land, the latter reframes it through a hyperpolitical language. The paper concludes that in the current sub-Saharan context characterised by increasing competition for local resources, access to land remains central to the negotiation of citizenship in the rural milieu. This shapes the boundary between formal and informal, legal and illegal, and yet reflects the attempt of people and social groups to validate claims to resources in a rural context where overlapping politico-legal institutions compete for local power.

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Farewell to the Peasantry? Primitive Accumulation and the Agrarian Question(s) in sub-Saharan Africa

In the last two decades there has been a stimulating debate on the role played by the agrarian question and of primitive accumulation in developing countries, and in particular in sub-Saharan Africa. In sub-Saharan Africa the agrarian question remains still unsolved and closely tied to the national question. Indeed, the so-called “traditional” pre-capitalist agrarian systems have not been entirely replaced by a process of transition towards capitalism, by means of primitive accumulation. Since the 1980s the structural adjustment programmes have reinforced processes of economic integration at global level, and have increased the level of commoditization of agriculture. A new division of labour within the agricultural system has been created, generating new complex and contradictory processes of change of the rural world, defined as “agrarian question of labour” within the framework of the so-called “communal traditional” agrarian systems.

The paper intends to discuss the debate about the agrarian question and the role of African rural societies in the contemporary global transformation processes. I will argue that peasants are still politically meaningful. Indeed, in most areas of Africa rural and urban worlds co-exist and overlap. This process seems the only possible as it allows the peasants (or in many cases the worker-peasants) to maintain the access to their land within the so-called traditional land tenure systems as a basic safety net for their own survival, jointly with other non permanent off-farm incomes. Therefore, if we

can take into consideration the possibility to say farewell to the peasantry, this must be placed in the specific contexts and the different historical paths, locating the processes of transformation of the rural areas in the international division of labour of contemporary global policies. At the same time petty commodity producers who "owns" the land are a source of legitimacy for private property itself, and, therefore, their continued reproduction has an ideological function both for the capital and for the state. The current processes of transformation are redefining the peasantry; however they are reconstituting themselves as peasants. Within this framework, farming can produce some outcomes: it makes survival possible; it allows for further improvements and the enlargement of farming activities; and it allows for the maintenance of, if not the enlargement, of peasants autonomy.

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High uncertainty of business-as-usual development undermines additionality in REDD

REDD has triggered considerable debate about the effectiveness and efficiency of emission reductions, the impacts on equity of involved stakeholders and about its co-benefits for people and nature. We argue here that REDD, as currently proposed, has a serious shortcoming that will be particularly difficult to resolve: how to ensure additionality, that is, achieving emission reductions that are additional to what would have happened without intervention. Additionality necessitates the anticipation of the business-as-usual (BAU) scenario, i.e., the emission baseline measured in tons carbon against which emission reductions are to be rewarded. If business-as-usual predictions are too conservative (actual carbon emissions in the future are lower than predicted emissions), then emission reductions will not be truly additional, resulting in what has been termed 'hot air'. Conversely, underprediction of future emissions will provide insufficient compensation incentives to effectively reducing emissions from forested land. Reliable future predictions are therefore at the core of REDD implementation to ensure an efficient allocation of funds and to provide the benchmark against which to compare emission reductions. However, business is often not usual and the future frequently departs from the realms of history. Particularly in dynamic environments such as many tropical forest frontiers and in complex coupled systems such as land systems, the past is often a bad predictor for the future. Novel drivers may emerge and previously unknown thresholds may appear that can set off abrupt and unexpected responses of land users. Moreover, unforeseeable covariate shocks such as impact of invasive species, natural disasters, civil wars, financial upheavals or government policies often punctuate gradual land-system transitions, with potentially substantial and highly nonlinear effects on land-related carbon fluxes. Unfortunately, the occurrence, timing and the magnitude of the impact of such events are unknown a priori, thereby prohibiting accurate predictions. We demonstrate with empirical case studies in four countries in Southeast Asia (China, Laos, Vietnam, Indonesia) how slow and fast, linear and nonlinear periods of land-system change alternated in unanticipated fashion. These examples underline the large uncertainty of future greenhouse gas emissions that compromises prospective baseline setting. Yet, highly uncertain baselines are a key obstacle for performance-based compensation payments in REDD devoted to reducing land-based emission below the 'business-as-usual'.

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Attempts at Protecting Biodiversity while Safeguarding Livelihoods: Findings from two REDD+ Readiness Pilot Projects in Tanzania

Tanzania is one of the nine countries where REDD+ pilot initatives are implemented. The country has formulated a national REDD+ stategy which is intended to facilitate effective and coordinated implementation of REDD+ related policies, processes and activities so as to contribute to climate change governance and sustainable development. The country has also formulated national REDD+ social and environmental safeguard standards which address some key issues such as rights to land and forest resources; rights to participation; rights to access to information about REDD+ implementation; rights to benefit sharing; conservation of biodiversity and ecosystem servces and protection of natural forests. There are nine REDD+ pilot projects led by NGOs which are operationalised in different parts of the country. These aim of these pilot projects is to address deforestation and forest degradation and to measure carbon emission reductions in order to sell them to the international market. In addition, the projects have additional objectives for conservation, sustainable resource use and improvement of rural livelihoods. The paper looks into two of the pilot projects, which are being implemented in Kondoa and Lindi districts. While the promoters of the pilot projects present them through the the triple-win discourse involving climate change mitigation, nature conservation and benefits for local communities; the evidence from the field is bit mixed. This paper discusses outcomes of the pilot projects for the involved villages, based on data collected from field visits.

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Participatory Forest Management in Tanzania: Lessons for REDD

This paper looks at the current experience with Participatory Forest Management (PFM) in Tanzania and its relevance for establishing a national REDD program. REDD can help in reducing greenhouse emissions through sustainable management of tropical forests. Since large areas of tropical forests are under some form of customary or communal tenure, decentralized forest management is seen as a means to channel REDD activities in developing countries. Mainland Tanzania has one of the most progressive decentralized PFM policies in Africa. Two main approaches are Joint Forest Management (JFM) on government forests, and Community Forest Management (CFM) on village forests. Altogether more than 3.6 million hectares of forests are under some form of PFM. Tanzania is also one of the nine pilot countries under the United Nations REDD program. Given that PFM is a potential vehicle for implementing REDD in Tanzania, lessons from existing PFM regimes become hugely relevant. We use the Actors, Power, and Accountability framework to assess forest governance in three PFM villages in the Uluguru Mountains region; one under CFM regime, one under JFM, and one where both CFM and JFM are being practiced. Methods include focus groups with key stakeholders (village forest

committees, forest users), and interviews with forest officials. We find that in spite of favorable policies, implementation of PFM has been fraught with challenges, with strong implications for REDD in Tanzania. Main findings include: (1) unclear demarcation of village forests into CFM and non-CFM areas. When combined with strict restrictions on forest use and unclear forest tenure in many parts of the country, this can result in loss of access to large tracts of village forests for local communities under REDD. (2) Corruption and elite capture of CFM regimes by management committees implying rent seeking and a non-transparent institutional structure at the village level. This means that formation of village REDD committees will not be enough; their functioning would need to be monitored as well. (3) Reluctance of forest officials to share benefits of JFM with villagers, implying inequitable sharing of potential carbon payments under REDD. (4) Displacement of the livelihoods of the poorest households (herders, charcoal makers). As forest access and use will be restricted under REDD, the poor may face even more hardships unless they are properly compensated. Our study shows that addressing these issues at the program formulation stage itself will be necessary for promoting equitable and sustainable REDD structures in Tanzania.

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Opening the Black Box of Carbon Finance "Additionality": The Political Economy of Carbon Finance Effectiveness across Tanzania, Uganda and Moldova

This paper identifies conditions under which carbon finance projects generate genuine, "additional" carbon credits—relying on a systematic empirical investigation of afforestation and bioenergy projects across Tanzania, Uganda and Moldova. At current low carbon prices, projects were highly additional when implemented by organizations motivated by developmental and economic interests: NGOs and, importantly, state agencies. States subscribing to liberal developmentalism, such as Uganda and Moldova, established state agencies that were able to harness carbon finance towards state developmental objectives. More skeptical of liberal economic policy, the Tanzanian state was less inclined to engage with carbon finance despite capacity to do so.

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To be or Not to be: REDD, Cocoa, Forests and Farmers in Aowin District, Ghana

Ghana is in the process of getting ready to implement REDD+ interventions lead by the Ghana Forestry Commission. REDD+ is envisaged to work by compensating communities for avoided deforestation. Therefore, an understanding of communities' preferences for compensation is important to work out

compensation packages that are meaningful for the community and that will enhance their livelihoods and contribute positively to their socio-economic and political conditions of existence. This study was undertaken in a REDD pilot area in the Aowin district in south west Ghana with the objective of understanding the kind of compensations the community members aspire to, in return for avoiding deforestation and refraining from livelihood activities that could potentially lead to forest degradation, as well as for undertaking other positive mitigation activities. The study based on FGDs examined the preferences of communities divided into groups on the basis of gender and ethnicity and found significant differences. The indigenes/native ethnic groups were mostly in favour of a combination of individual and community compensations, while the in-migrants mostly favoured individual cash compensation. They were concerned about their future as the land belongs mostly to the native ethnic groups. The implementation of REDD could have consequences for their future, both in terms of access to land as well as livelihoods. The gender-based differences also came through in the study. Women in general were concerned about the REDD process being inclusive of all community members as well as future generations. This also highlights the importance of taking into account future generations when thinking through REDD compensations. The community's preferences for compensation are highly varied, context specific and nuanced. This is indeed a challenge in planning compensation packages. Conflicts and uncertainties could arise, especially where communities are heterogeneous, e.g. where migrants, indigenes and different ethnic groups with different levels of forest dependence co-exist. This study highlights the complexity of the issue of compensation and the ethical and moral dimensions of REDD+ – both at a policy level as well as at the empirical level of implementation. This is going to have an impact, in one way or other, on a large number of people, largely in the margins of the global political economy of climate change.

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Climate impacts increase uncertainty in assessing terrestrial climate policies

The changing concentration of greenhouse gases (GHG) in the atmosphere drives climate change. Forests store huge amounts of carbon, which is released as GHG carbon dioxide (CO2) to the atmosphere if forest is cleared. But when additional forest is established, CO2 is detracted from the atmosphere by photosynthesis. Avoided deforestation and afforestation are therefore measures to mitigate global warming. At the same time important biophysical determinants for forest growth, like temperature, precipitation and CO2 fertilization, are subject to climate change. Here we explore the impacts on terrestrial carbon stocks for both dimensions, terrestrial climate policies and climate impacts, for a 2 °C scenario throughout the 21st century using a spatially explicit socio-economic model of the global land-use system. We find that cost-efficient implementation of land-based mitigation measures, especially afforestation, could alter the terrestrial carbon balance to an extent relevant for the climate system. But the consideration of climate impacts in assessing terrestrial climate policies increases uncertainty related to the mitigation potential substantially.

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Concept, evidence and implications of regime shifts of land systems in Southeast Asia

Land systems often exhibit regime shifts, that is, abrupt, large-scale, and persistent systemic changes in land-system structures and functions. Unfortunately, few empirical studies in land system science have addressed such regime shifts to date despite their ramification for livelihoods and ecosystem services and pronounced policy implications. We present evidence of regime shifts in land systems in four case studies in Southeast Asia: Xishuangbanna Prefecture, China; Huaphan Province, Laos; Nghe An Province, Vietnam; Kutai Barat District, Indonesia. The empirical comparison over time and across sites revealed that land systems in all sites were initially dominated by subsistence-based shifting cultivation in early 1980s but later embarked on distinctly different pathways with different agricultural production strategies. While the land systems in Laos largely remain in the original regime, the land systems in China and Vietnam rapidly shifted to alternative regimes with capital-intensive and market-oriented rubber plantation and permanent cropping, respectively. In contrast, the Indonesian sites seem to at the brink of a regime shift towards market-oriented oil palm plantations. Regime shifts across sites are governed by distinct mechanisms and diverse underlying drivers. We designed a system dynamics (SD) model to help understand the dynamics of the regime shifts in land systems. In this model, we conceptualize the regime shifts as a diffusion process driven by the quest for higher economic returns and constrained by biophysical and socio-economic factors (e.g., availability of labor, capital, technology and infrastructure). The model demonstrates how gradual change can induce sudden systemic shift. For example, the gradual increase in the commodity price of a particular crop product eventually triggers a rapid and large-scale shift from traditional subsistence to a cash-oriented production system. This is consistent with the S-shaped adoption curve and corresponds well to reality, such as in the case of the rapid expansion and dominance of rubber plantations in Xishuangbanna, China. The potential occurrence of regime shifts exemplifies the complexity and unpredictability of land systems. This poses a daunting challenge for land-use policies like REDD+ that aim to alter land system pathways. REDD+ may aim to avoid a land system from shifting into an undesirable regime but instead deliberately guiding it into a desirable regime. While the SD model is unable to predict future regime shifts, it nevertheless provides a useful learning tool and has great merit in supporting proactive policy-making through the examination of the behavior of key variables over time and under different scenarios.

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Community monitoring of forest carbon; costs and implications for tree species identifications

Current United Nations Framework Convention on Climate Change (UNFCCC) texts and guidance documents on the technical aspects of REDD+ outline explicit roles for indigenous people and local

communities in implementing REDD+ and state that projects should secure Free Prior and Informed Consent before implementation begins. However, it has been questioned whether these good intentions are being translated into activities on the ground in countries where pilot projects are testing modalities for implementing REDD+. We assessed whether local communities can effectively estimate above ground carbon stocks in some of the world's most carbon rich forests, using simple field protocols. We estimated the costs of community versus professional monitoring over a two year period. Finally, we compared community identification of trees to those of professional foresters. We obtained similar results for forest carbon when measured by communities and professional foresters in 289 vegetation plots in Southeast Asia. Costs of community monitoring depended primarily on amount of training given and dropped in the second year. Community identifications of trees compared well with those of a professional botanist at genus but not always species level. We propose greater embedding of community monitoring within national REDD+ pilot schemes, which we argue will allow for scaling-up ground truthing, have greater resonance at the local level and lead to a more just REDD+.

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Using Social and Spatial Data, and Matching Methods to Assess National and Sub-National Social Impacts of REDD+ in Kalimantan

Countries are grappling with how to monitor and evaluate the social impacts of REDD+ at the national and sub-national scales as they develop safeguard information systems. Of critical importance are approaches that adequately operationalize governance and social welfare indicators, provide opportunities for ongoing monitoring, reporting and verification (MRV) of REDD+ impacts, can be combined with spatial data, and are feasible in terms of within country human and financial capital. In this paper we provide a review and assessment of publically available governance, socioeconomic, and spatial data sources suitable for REDD+ social safeguard MRV using the example of Kalimantan, Indonesia. We focus our attention on Cancun Safeguards 1-5; noting that permanence and leakage, Cancun Safeguards 6 and 7, are already at the center of national-level REDD+ MRV initiatives. After the reviewing the potential for leveraging existing data sources, we focus on operationalizing Cancun Safeguard 5, "Avoid the conversion of natural forests and ensure that activities conserve forests, biodiversity, ecosystem services, and enhance other social benefits". Specifically we review options for integrating socioeconomic, and spatial data to create a counterfactual scenario for social impacts in geographic areas with and without REDD+. We demonstrate how socioeconomic data can be integrated with GIS and remote sensing data on the location and scale of REDD+ programs and projects to analyze the social impacts of REDD+ over time in Kalimantan. Our analysis suggests that there are several challenges and opportunities for countries as they move forward with REDD+ safeguard MRV. Limited ability to operationalize safeguards related to tenure and free prior and informed consent (FPIC) using existing data sources, lack of geo-referencing for governance related data, incompatibility of data layers in terms of their spatial and temporal resolution and frequency, and the complexity of generating appropriate counterfactual scenarios are issues that need to be addressed. Never-the-less, we provide proof of concept for one aspect of REDD+ social safeguard MRV

using publically available socioeconomic and spatial data. Despite the limitations of existing data sources, we recommend against designing entirely new systems for REDD+ safeguard MRV. Strengthening ongoing national and sub-national data collection efforts to include key geo-referenced governance indicators and to adequately capture relevant welfare indictors provides a more sustainable solution.

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Making accurate biomass maps: How do DEM and the size of ground plots affect woody carbon estimation from ALOS PALSAR images in Miombo Woodlands?

To accurately estimate woody biomass at a regional or national scale remote sensing is essential and can reduce the cost of large-scale ground inventories. Radar remote sensing offers may advantages for biomass estimation. However, there are many factors that may introduce bias and uncertainties to regional biomass estimation from remotely sensed data, such as (1) noise in radar images; (2) the need for geometric and radiometric corrections based on topography (3) mismatch of plot size and the number of radar backscatter pixels. To compare how topographic data and size of ground plots affect the accuracy of regional biomass estimation, regional biomass with uncertainties are calculated for an area in SE Tanzania (give size and details) respectively using 2 different DEM (Digital Elevation Model) products (ASTER 30m and SRTM 90m) and ground plots of 3 different sizes (0.2ha, 1ha and 9ha). L-band ALOS PALSAR radar images in FBD format are obtained for dry seasons from 2007 to 2010, and preprocessed in Mapready V3.0.6, before the backscatter value for each plot is extracted from the image. Liner regression is applied to describe the backscatter-biomass relationship for each plot size group, which is then used to estimate biomass values for the whole region. Cross validation is employed to estimate the uncertainty, with mean error and bias calculated to compare the accuracy of the backscatter-biomass relationship. The uncertainty for whole image are calculated from a 1000 time bootstrapping method, and exported as an uncertainty map. Results show that SRTM 90 m is the better product for terrain correction of radar images in study area, even it has a coarser resolution compared to ASTER 30m. Using biomass value from 1 ha plots against the averaged backscatter value from 2010 give the best biomass-backscatter regression results, with r = 0.9. The best regression is: Biomass (tC/ha) = 1028.05 * Backscatter (m^2/m^2) - 2.18. Mean biomass of the study region is 21.06 ±1.57 tC/ha, with a bias of 0.10 tC/ha and a RMSE of 6.57 tC/ha. This result shows that relationship generated from 1ha plots can estimate biomass with low bias at a regional scale. But for a small region, because the RMSE is rather high, the estimation may come with high errors.

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Planning for Privatization: Land Use Planning and REDD+ Pilot Projects in Tanzania

The international policy framework on global climate change and REDD+ projects implemented in different parts of the world encourage the establishment of private and individualized property rights. They share the assumption that clear ownership rights are not only conducive to a better management of forests, but also a way to entitle local communities to access carbon benefits. Although carbon is an 'intangible' commodity destined to be traded in global green markets, carbon forest projects like REDD+ depend largely on grounded processes of control over forested land. In Africa, the implementation of carbon forest projects remain particularly problematic as states continue to retain their formal ownership of land. Instead of direct privatization of land, many African governments opt to use NGOs as intermediaries for carbon sale contracts. In the case of Tanzania, the NGOs implementing the REDD+ pilot projects are given the green light to carry out village-level land use plans, which involve the creation of forest reserves where carbon would be sequestered. NGOs have to work closely with district level local governments for the demarcation of village boundaries, allocation of land for specific uses within those boundaries and in the drafting of bylaws that define the rules of access to land. Furthermore, land use plans are made a pre-condition for the allocation of 'customary rights of occupancy' in rural areas, which would presumably allow the peasants to use land as a collateral for obtaining loans. This legal and institutional framework makes the REDD+ pilot projects and the NGOs that implement them major players in the privatization of forests and land. Based on the example of a 'local' NGO (TFCG/MJUMITA), this paper analyzes how REDD+ pilot projects help transform the authority of local governments through land use planning and allocation. Yet, REDD+ pilot projects continue to be supported because they fit into larger goals of land privatization for other types of investments. Lastly, the paper will consider the profound impacts of land use planning process in intensifying resource and land conflicts among the villages chosen as pilot project sites.

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Land use and armed conflict: reasons for forest carbon conservation among traditional farmers in the Colombian Amazon.

REDD+ are to be implemented in countries and regions confronting challenges to the control of illegal activities such as guerrilla insurgencies or illegal crop cultivation. The reasons why farmers inhabiting areas experiencing armed conflict would be interested in: changing traditional agricultural production systems and working toward climate change mitigation remains little studied. This study analyzes factors influencing the adoption of land uses that contribute toward reducing forest carbon emissions among farmer inhabiting 14 villages located in a region historically recognized as the stronghold of guerrilla insurgencies and center for illegal crop cultivation in Colombia. REDD+ actions are to be

piloted by the Colombian government in this region. Data were gathered through surveys (n=91) and participatory approaches by the team designing the pilot program. Preliminary results reveal that 88.9 % of the respondents arrived in the focus area between the years 1980 and 2010. The other 11.1 % arrived between 1960 and 1980. Residents were principally drawn to the area by productive economic boom activities such as illegals crops or alternatively were resettling after displacement by armed conflict. Farmers associations' agreement on the use of natural resources was found to be the primary reason for conserving forests (47.8 % of the respondents), followed by protection of water resources (24.4 %) and preservation of sources of timber and non-timber products (4 %). Results further indicate that 90 % of respondents benefit from forest ecosystems. Availability of wood products and bush meat extracted in owned forest lands are the main ecosystem services contributing to their livelihoods (for instance, wood products are extracted by 86.5% of households and bush meat by 72.2% of the respondents). Our preliminary findings point to the importance of consider locals' preferences for co-benefits, such as reinforcement of institutions and preferred ecosystem services, when designing actions aiming at conserving forest carbon stocks.

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Quantifying the causes of deforestation and degradation: a method and case study from Mozambique

Reductions in deforestation and forest degradation are advocated as a means to mitigate climate change. The formulation and implementation of policies to achieve such reductions requires an understanding of current and historic land-use change and associated greenhouse gas emissions. In addition, it is often proposed that any reduction in emissions be measured against a reference scenario that describes future land-use in the absence of intervention. However, the information needed to progress this agenda is rarely available, as robust data on the extent and causes of land-use change, and the associated changes in carbon stocks, are sparse, particularly in African woodlands. Here we present a novel method for obtaining such information by combining data from radar remote sensing and ground surveys with a simple aspatial model. Using this approach we quantify changes in woody biomass and investigate the land-use activities that caused these changes in a 7500 km2 area of Manica province, Mozambique. We use the data to construct a model linking the activities causing biomass loss to hypothesised drivers, allowing the definition of future scenarios. Within the study area, biomass was lost at a rate of 2.8±1.9% per year, reducing stocks from 19.4±0.9 TgC in 2007 to 17.6±0.9 TgC in 2010. Small-scale agriculture was the direct cause of 46±17% of the total biomass loss, followed in magnitude by construction and miscellaneous activities (24±11%), charcoal production (18±9%), logging (9±5%) and large-scale agriculture (3±2%). Uncertainties remain on the biomass accumulated by regrowing vegetation. Extrapolating into the future, a scenario that includes projected population growth shows 41% of forest biomass being lost from 2010-2020 (a loss of 7.2 TgC). A scenario of intensive policy interventions gives reduced losses of 3.8 TgC by factoring in improvements in crop yields, charcoal production efficiency, and sustainable timber harvesting. Our case study demonstrates the importance of low intensity losses of biomass in African woodlands, and highlights the broad range of activities that will need to be addressed to develop locally appropriate

mitigation actions. The simple modelling framework allows for the transparent creation of scenarios in data sparse areas, which could be used as local or national reference emissions levels under REDD+.

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Management Land use planning and agricultural investment in northern Laos: Effects on forests and on small-holders' access to forest land.

This paper presents results from an analysis of negotiations related to control over land and the use of natural resources during the era of REDD readiness preparations in northern Laos in the face of rapidly increasing investments in agricultural production as well as declared high concern for environmental protection. Northeastern Laos has been the focus of several waves of forest conservation regulations. We analyse the concrete implementation of a range of government policies in two case-study villages to shed light on the institutional practices regarding land rights issues. We are particularly interested in the promotion of forest conservation on the one hand and cash crop production on the other, as well as the limits to governance in remote villages, forests and mountainous areas. On the one hand, the Government of Laos has, with the support of international donors, rolled out so-called participatory land use planning that aims to reduce the area under upland rice shifting cultivation, as well as increase the forest cover. Through the land use planning process, land that has traditionally been used for agriculture, although in a rotational system, is being re-labelled as forests, which by default is state property and under state regulations. Consequently, through the process of participatory land use planning, which supposedly is expected to increase villager's land tenure security, villagers are potentially excluded from yet greater areas. This delimitation and re-categorization is justified as an intervention that aims to confront climate change impacts and reducing deforestation. On the other hand, the local population has cleared village production forests and other forested fallow areas in order to increase their areas for maize cultivation, a cash crop that is currently booming in the area. This is done without any governmental efforts to reduce the deforestation from this activity. Thus, although REDD preparation activities have a high profile in Laos and the case-study district has been selected as priority area for national REDD pilot activities, there are only limited expectations by development workers that REDD will achieve its full potential as a vehicle to strengthen property rights for the rural populations in Laos. Rather, it seems that the Government of Laos is strengthening its formal claims to land through the process of participatory land use planning in preparation for potential REDD income, while at the same time letting farmers' clear forests for maize cultivation to increase their cash income and 'turn land into capital'.

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REDD mess in Laos: story of an emerging institutional setup

As in many developing countries with substantial areas of remaining forests, REDD+ is currently emerging in Laos. The readiness preparation process involves institutional reconfigurations, policy revision, capacity building, and demonstration activities to feed into national policy formulation. The objective of this paper is to assess whether these processes are helping or hampering future REDD+ implementation. We analyze recent institutional transformations in the forest sector and assess the challenges faced by the emerging REDD+ administration in relation to human capacity, human resources and their allocation at different levels of governance. The research is based on a review of official documents (policies and regulations), grey and scientific literature and a series of interviews with key informants from organizations dealing with REDD+ at the national a subnational (province and district) levels. Laos has rapidly progressed in REDD+ preparation thanks to strong support from donor institutions and external experts. Laos' Readiness Preparation Proposal was approved by the World Bank in 2012 and REDD+ demonstration projects have started testing implementation scenarios at different locations. However, these activities have been recently affected by profound institutional transformations in the forest sector, with impacts on staff turnover and the capacity of government agencies to implement REDD+ at the national and subnational levels. With key REDD+ stakeholders focused more on institutional rearrangements than on actual policy design and implementation, national REDD+ activities are currently on hold. In addition, the technical aspects of REDD+ are strongly relying on external experts. In fact, REDD+ host institutions tend to follow the interest of external experts rather than forming their own positions. Thus, REDD+ in Laos may not be effective before long if the challenges of institutional reform and the capacity of key government staff are not considered as key issues for national REDD+ policy development.

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Forests, the landscape and what they mean for the wellbeing of the rural poor: Inferences for REDD+

Interventions to manage tropical forests can have considerable impacts on the lives of those living alongside. Impacts can be both positive and negative, affect both poor and non-poor people and are not only material but also social and cultural. Therefore while compensation schemes can financially benefit the rural poor, there are a range of potential impacts to a diverse population, which may be crucial for the promotion of social co-benefits and perhaps also for achieving carbon and biodiversity goals themselves. This study applied a 'multidimensional wellbeing approach', which includes material, social and subjective dimensions, to assessing the wellbeing of forest-adjacent populations.

Research took place in western Rwanda, a highly populated and mountainous region. Household level, mixed methods study explored diversity within the local population and focused not only on the importance of the neighbouring tropical forests to people but also of the wider landscape and externally driven economic, social and political change. This approach provided a number of important insights relevant to REDD+ regarding generation of co-benefits alongside carbon, impact evaluation methods and its suitability in certain contexts. 1) In contrast to more conventional development indicators, disaggregation of the population and attention to subjectivity in wellbeing definitions provided data which revealed wellbeing to be falling among many rural households and inequality to be increasing. 2) The relationship between economic wealth and natural resource use was complex and varied depending on the resource in question. Social, cultural, economic and political factors had substantial impacts on land tenure, land use and demand for specific resources, suggesting that financial compensation may not be effective in reducing many aspects of forest use. 3) Inequalities in power between socio-economic and ethnic groups greatly influenced both their ability to participate in decision making processes and to benefit from projects aiming to transfer material benefits to them. In this case the Twa, an indigenous people, suffer acute difficulties, exacerbated by lack of recognition, inter-ethnic interactions and reduced forest access. 4) Despite the context of high population density and diversity, complexity of natural resource use and a dynamic political and economic arena, demand for resources from intact tropical forest were few. Key goods were primarily obtained from alternative habitats, meaning that, while increased forest protection may have severe impacts for some local people, landscape-level management designed to ensure provision of key goods and services to local populations could be highly compatible with biodiversity conservation.

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Identifying windows of opportunity for REDD+ through participatory land use modelling

Over the past few years, efforts at designing workable REDD+ mechanisms have increasingly pointed to the challenges of accounting for a wide range of ecosystem services while enhancing local livelihoods and equity. Clearly, REDD+ is neither feasible everywhere nor is it necessarily appropriate at all stage of a particular, local development trajectory. As for many other policy interventions, windows of opportunity can theoretically be identified that correspond to high potentials for impact and success. Yet, in contexts of rapid land use change, finding the right place and the right time to implement REDD+ are not easy tasks. Many lengthy and costly feasibility studies have thus been conducted to assess the opportunity, implementation and transaction costs of REDD+ and finally show that existing REDD+ instruments are not adapted to the local circumstances or not economically viable. In this paper, we argue that participatory land use modelling can prove a valuable option compared to expert feasibility studies based essentially on remote sensing. Land change models can help identifying when and where a REDD+ opportunity window opens or closes and therefore can provide guidance to REDD+ project implementation. The active involvement of local stakeholders and land users can also improve the credibility, legitimacy and applicability of the models. To support our claim, we present a pluralistic modelling approach aimed at enhancing participation and communication with local stakeholders during REDD+ feasibility and pre-implementation phases. The

approach features a set of graphic tools, including behaviour over time graphs, causal networks, land-use transition diagrams, sketch mapping (with or without high-resolution satellite images), 3D landscape models, interactive digital maps, and role-playing games. Such a participatory approach is often the only way for data collection, for example, to retrieve historic land use change for periods preceding the track record of satellite imagery. Furthermore, graphic tools, as an intuitive and universal language, can better facilitate the communication between stakeholders, and thus enable active participation of stakeholders. We tested out the approach in four countries of Southeast Asia (China, Vietnam, Laos and Indonesia) to understand local land-use change — what were the historic land use trajectories and their underlying drivers — and then assess the feasibility and potential impacts of REDD+. Such a stakeholder-centred approach has proven very effective in identifying windows of opportunity for REDD+ and providing guidance for implementation in complex landscape mosaics.

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Symbolic democracy as social safeguards in REDD+: The case of the UN-REDD Programme in Nigeria

The reducing emissions from deforestation and forest degradation plus the sustainable management of forest and enhancement of carbon stocks (REDD+) is a proposed global climate change mitigation initiative that could lead to the largest enclosure of public forests, with negative impact on livelihood of forest dependent people. The United Nations REDD Programme (UN-REDD) is working with governments in developing countries to build up their capacity in implementing REDD+ if and when it becomes part of a new global climate change mitigation treaty. In recognition of REDD+ probable negative impacts on local livelihood, the UN-REDD has developed a rigorous set of environmental and social safeguards. Included among the social safeguards is the promotion of strong local democracy as a measure against elite capture of REDD+ benefits. In Nigeria, the UN-REDD favor a participatory approach in the Nigeria-REDD programme implementation based on the conviction that this strengthens local democratic practices. A study of the design phase of the Nigeria-REDD was carried out using literature review, participant observation, and field interviews of 125 research participants. The study found that the UN-REDD participatory approach fails to capture and address severe democratic governance deficits at the local level in Nigeria. In spite of this shortcoming the Nigeria-REDD was approved by the UN-REDD policy board and its now in its operational phase. The sociology of international organizations (IOs) theory explains this gap between rhetoric and practice as resulting from IOs mandate to refrain from challenging the sovereignty of their member states, and from IOs technocratic bureaucratic culture. However, critical environmental theory also show that government institutions in order to gain public acceptance while not offending powerful benefactors, formulate symbolic environmental policies that creates a perception of providing solutions to environmental problems without substantively addressing the problems. This paper shows that the UN-REDD is engaging in symbolic democratic action in Nigeria, to gain public acceptance for REDD+, while not alienating its benefactors, which in this case are the UN-REDD donors and member states.

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Forest rights: the hard currency of REDD+.

One of the proposed strategies for implementation of reducing emissions from deforestation and forest degradation plus (REDD+) is to incentivize conservation of forests managed by communities under decentralized forest management. Yet, we argue that this is a challenging road to REDD+ because of three general characteristics of forests under existing decentralized management regimes. First, these forests already accumulate biomass and, in some cases, generate leakage, which threatens to undercut REDD+ additionality. Second, these forests are many and small, which will drive up REDD+ transactions costs. Third, beyond the "conservation islands" represented by forests under decentralized management, processes of deforestation and forest degradation continue. Given these challenges, we argue that REDD+ efforts through decentralized forestry should be redirected from incentivizing further conservation of forests under existing decentralized management arrangements toward a push for extending the coverage of forests under decentralized management, making forest rights the hard currency of REDD+.

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The illusion of representation under REDD+ Readiness consultation process in Ghana

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Abstract

Stakeholder participation and consultation both at national and sub-national levels is an important pillar for the development of REDD+ . Ghana claims to have developed its REDD Readiness Plan through a highly participatory and consultative process using the notion of stakeholder representation in designing the institutional architecture for participation. The rhetoric of democratic representation is highly visible in Ghana's constitution and forest policy statements. To what extent was the espoused democratic principles regarding representation implemented by intervening authorities who designed and implemented the REDD Readiness strategy consultative process. The paper explores the politics of institutional choice for democratic representation of REDD+ actors, by examining espoused visions of democracy against actual commitments in practice.

The paper argues that representation is an illusion and highly symbolic feature of the REDD participatory process in Ghana; democratic representation remaining a highly conceptul notion compared to the practice of participation. Finally, institutional choices for stakeholder representation was more instrumental in the sense of getting various stakeholders listed in the process than representation of substantive interests (reponsiveness). In effect, current understanding of

representation under institutional choices for stakeholder participation approaches, in practice, is very far from the desired democracy outcomes like responsiveness and accountability.

Keywords: forest governance, institutional choice, democratic representation, stakeholder participation, REDD+

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Potential for Group-Based Approaches to Enhance Security of Assets for Women to Manage Risk under Climate Change: A Participator

Climate change is a global problem; nevertheless those countries contributing least to global climate change suffer most from its adverse consequences, which are often magnified due to their dependence on rain fed agriculture. Ethiopia is such a country, almost entirely rain fed and with 42 per cent of its gross domestic product depending on agriculture (MoFED, 2011). Ethiopia is thus vulnerable to climate change; and those Ethiopian women who depend on natural resources, including agriculture, for their livelihoods are particularly vulnerable to climate change. Their vulnerability is exacerbated by relative insecurity of assets (Ifejika Speranza 2011). Thus with insecurity of tangible assets, how can intangible assets, in the form of group-based organisations enhance security of assets, especially for women, in order to better manage risks posed by climate change? By way of gender segregated focus group discussions in Amhara and SNNPR, Ethiopia, perceptions of climate change were obtained in order to establish a basis of the most significantly impacted areas due to climate change and what adaptation strategies are already used by the participants from the study sites. Secondly, perceptions on security of assets were acquired, firstly by determination of the most important assets and then by exploring the prevalent gender and asset dynamics. Lastly, existing group-based organisations with a direct or indirect link to women and/or adaptation were looked into to reveal their strengths and weaknesses, and thus discover a potential for further development thereof to increase women's security of assets to better manage risk under climate change. Most notably three group-based organisations, one gender mixed, one female only, and one generally male, are undertaking activities that strengthen local communities through self-help, knowledge sharing, external advice and awareness creation with direct and indirect spill-over effects toward enhancing control over assets for women to better manage climate change risks. Aspects insufficiently included by the existing group-based organisation, however identified as constraints by the participants are issues related to health and access to credit, particularly for women. These are therefore areas with potential for improving asset security through group-based organisations.

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Are Community Revolving Funds a Sustainable and Equitable Method of Slicing the REDD+ Pie? Insights from Mt. Elgon, Uganda.

Reduced Emissions from Deforestation and Degradation (REDD+) is highly controversial market-based policy instrument. Designed to finance carbon capture and storage though forest conservation and afforestation; it been deemed a cheap and dirty solution to climate change. Further concerns that it may exacerbate existing inequalities and undermine the rights of poor forest-dependent communities have plagued its progress in the global policy- making arena.

As rapid deforestation continues to threaten carbon eco-system services, endowment funds have been pumped into the first generation of pilot projects with the hope that they can tease out controversies over livelihood impacts and provide evidence for effective, efficient and equitable intervention methods.

The purpose of this talk is to present empirical data on how a Conservation Incentive Program called Mt.Elgon Regional Eco-System Conservation Project (MERECP) has impacted Benefit Sharing at the community level in Mount Elgon. Following McDermott et al (2011) multidimensional approach to measuring equity, I will evaluate whether smallholder farms in Uganda have the 'eligibility,ability and willingness' to become efficient providers of Carbon services (Pascual et al 2010).

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Governing REDD and Tenure Regimes: Theoretical and Practical Challenges in Weak Property Rights in Sub Saharan Africa

Forest governance in developing countries and Africa in particular faces major challenges including: forest loss, competing land uses and the market, policy and governance failures. The competing land uses are mainly from agriculture that accounts for the immediate causes of forest loss, then in turn, the market, policy and governance failures. These factors have raised questions on how forest governance works in determining who gets to decide about forests and how? The article focuses on forest governance in the context climatic change adaptation and mitigation, particularly on governance challenges under Reducing Emissions from Deforestation and Forest Degradation (REDD) scheme, which has gained prominence as a technical, political and social responses to climatic change. Within the United Nations Framework Convention on Climatic Change (UNFCC), it is being considered to be more effective and offers low cost option by paying for forest conservation. The article further questions the effectiveness of REDD+ incentives-based approach in greening the forest through the market paradigm in situations where property rights are non-existence. Forest and land rights are embedded in multiple significance including agriculture, ecosystems and rural livelihoods. In most cases forests and lands are owned under common access with rights overlapping. This makes it very cumbersome to determine use and control rights. In addition, it is evidenced that REDD implementation in weak governance is not satisfying. The implementation is associated with lack of participation, consultation and compensation. A replica of a market model in the payment for conservation of carbon stocks in collective rights scenario creates more creates more controversies in

weak governance which lack local-national arrangements for the market to deliver positive outcomes. Presence of competing interests outweighs nature conservation. The principles of free, prior and informed consultation are rarely respected. The presence of hostility against the scheme raises the question legitimacy and limited involvement of local peoples. As the value of standing forests increases, powerful actors tends to capture those values to the disadvantages of the less powerful forest dependent poor. Securing resource rights in this case is a prerequisite for the market-based incentive approach to work effectively and this will give the poor leverage in power relations with government and the private developers since effective rights will be accompanied with effective sanctions against their transgression. The paper examines the flaws in REDD scheme through a market model in the context of weak governance in which collective rights predominate in the local communities.

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Analyzing REDD+ pilot project in Community forest user group of Charnawati watershed, Nepal

In Nepal forest management is successfully implemented through the community based forest management system. In particular, community forestry has played an important role for forest management through improved forest governance, effective participation and equitable, access and benefit sharing which will provide important lessons for the design and implementation of REDD+. Since REDD+ is being recognised as an additional motivation to provide a further incentive to forest user groups through performance based financial mechanisms. This research aims to understand the underlying factors of successful community forest management in Nepal and analyze the impacts of the pilot REDD+ which is taking place in Charnawati watershed in relation to the community forest management. The research has been based on a literature review, data extracted from websites and a number of telephone interviews with the community forest user groups of Charnawati watershed, Nepal. The research found that the REDD+ pilot project in Charnawati watershed has various positive impacts. The project has its focused not only on reduction of the deforestation and degradation but also on the poverty reduction and involvement of local communities which are reflected in the mechanism of distribution of the funds among the community forest and the various project activities. The distribution of the funds was based on the criteria not only in carbon sequestration but also on the social and economic status of the community forest user groups. The project provided opportunities of participation by local user groups which helped with capacity development and awareness improvement. Carbon measuring is also implemented by the local communities. Another major achievement was the increase of carbon sequestration in the watershed due to the plantation activities, preparedness of forest fire line, and decreased dependence on forest resources. This was attained through installation of biogas and improved cooking stove to the local people. The project also provided employment opportunities through the goat farming and tailoring. The impacts of these activities were sometimes perceived negatively depending on the position of the respondents. Specifically, fewer opportunities for participation and the ineffectiveness of new equipment to reduce dependence on forest resources were suggested by the minority groups and poorer people. The results

suggested that the REDD+ project on the community forests should consider diversity of local socio-economic conditions.

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How REDD+ can articulate with changing tenurial and livelihood dynamics? An examination of REDD+ implementation in the Central H

In post-socialist Vietnam, the initiative Reduced Emissions from Deforestation and Forest Degradation (REDD+) has taken off, both in terms of number of the projects, and amount of funding committed to the implementation of these projects. At the national level, legal frameworks regulating forests have been strengthened with the aim of preparing the country to be eligible for REDD+ money. At the local level, concrete activities have been implemented as part of the process of constituting carbon credits as a commodity for the global market. Through a case study of a REDD+ project in the Central Highlands of Vietnam, we demonstrate how the implementation of this project has affected local behaviours and practices concerning access to and use of forestlands and forest resources. Successful implementation of REDD+ has meant clear tenure arrangements over forestland and forest resources on the ground and strong legal frameworks facilitating carbon production and trading. However, as our case shows, REDD+ has been implemented in the highly ambiguous context of post-socialist property relations, characterized by overlapping state management and local tenure arrangements on the ground. In the Central Highlands, the implementation of REDD+ has reconfigured property relations at the local level and produced unexpected outcomes not envisioned by the project. In particular, we offer a detail description of how local people have responded to REDD+ ideas and practices through their ongoing conversion of forest areas under REDD+ (from extensive swidden) into intensified cassava production and the harvest of timber for housing needs in designated forest protection areas. The case shows how REDD+ can articulate with changing tenurial and livelihood dynamics, to effectively facilitate land sparing systems in the place of mixed-use landscapes. The paper highlights that in the context where deeper project knowledge on property relations and local tenure structure is lacking, the implementation of REDD+ may engender long-term forest conflicts which are harmful for both forests and local livelihoods.

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Forest carbon trends 2002-2013 at Mt. Elgon, Uganda

Previous research based on satellite imagery analysis demonstrated that in the last 35 years about 35% of Mt. Elgon's Afromontane rainforests have been deforested. Although the tide slowly seems to change, less visible but large scale forest degradation continues. To asses degradation, the forest's tree

biomass carbon stock was measured in 2002 and in 2013 on 44 permanent nested plots. A dataset of 1437 trees was obtained with 387 repeated-, and 643 first- measured trees in 2013 and 407 disappeared trees between '02 and '13. Carbon stock calculations (using the allometric formula of Chave et al. (2005)), indicate an overall median increase with 17.98 ± 12.42 Mg C ha-1 or 1.6 ± 1.1 Mg C yr-1 ha-1 of the median carbon stock in 2002: 32.46 ± 22.75 Mg C ha-1 to the median carbon stock in 2013: 45.79 ± 16.97 Mg C ha-1. Over the 11 years carbon stocks at plot level gained up to 81.32 Mg C ha-1 or lost up to 80.18 Mg C ha-1, evidence of ongoing degradation and recovery processes. Stocks also varied greatly from 16.47 to 279.87 Mg C ha-1. To identify which factors could influence degradation or recovery, plots were clustered based on their 2013 carbon stock and '02-'13 carbon flux. Although clusters were only statistically different in their carbon stocks, fluxes and average amounts of lost trees, trends in the plot's other variables could be noticed. These were further investigated by correlation analysis. Clusters and carbon stocks are significantly correlated with altitude differences between-, and distances and walking times from-, the plots and the nearest park border. The ease at which a plot can be reached by local encroachers thus likely influences its degradation or recovery. Since also the plot's altitudes are positively correlated with their carbon stocks, disturbance effects seem to obfuscate natural trends of decreasing carbon stocks with altitude, expectable at up to 500 m under the tree line. Significant correlations between the area and the plot's disturbance and carbon stocks suggest that also local socio-economic settings outside the park's borders and the effectiveness of local ranger activities play a role. Significant correlations between lost trees, stumps and ranger camp zones further hint at links with ranger activity.

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Coordinating Conventions in the Voluntary Carbon Offset Network

Carbon offset production networks are layered with a complexity of values and motivations different actors use to justify their exchange decisions. Conventions apply values and discursively construct the social meaning and value of a carbon commodity at multiple scales. This paper applies a commodity network approach and uses conventions theory to analyze the conventions in which voluntary carbon offsets are embedded. Specifically, I identify the conventions which shape the production of forest carbon offsets at each stage of the production process. I examine which conventions are mobilized and circulated among the network actors at multiple scales, and how this complicates the coordination of the production network as a result. Different conventions mobilized by actors in the commodity network are more dominant and relevant depending on the actor's social, cultural and economic context. Consumers are motivated to buy offsets as an expression of civic concerns, environmental values and/or social values. In turn, intermediaries mobilize industrial conventions, such as formal standards, in the certification of environmental and social characteristics of carbon offset projects which influence the design and process of producing the carbon commodity. Producers at the local level may be motivated to participate in carbon offsetting activities which contrast with the stories told by those responsible for selling and marketing voluntary credits. Farmers and communities in

developing countries receive payments for activities that offset forest-carbon and produce the carbon commodity, but they are motivated to participate because of civic, environmental or domestic conventions as well. The impact of carbon offset projects links to the different imaginaries built around carbon as a commodity, and the shortcomings can be understood as a failure to coordinate the conventions mobilized in justifying their production.

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Perceptions and management of land and resources in rural communities in the DR Congo: lessons for REDD+ implication

Given its vast forest area and rising deforestation rates, the Democratic Republic of Congo is one of the REDD+ focus countries. Population growth, rural poverty and a strong reliance on shifting cultivation and artisanal resource extraction as livelihood strategies have been identified as the main drivers of deforestation and forest degradation in the core forest regions of the country. Subsequently, the national REDD+ strategy strongly focuses on agricultural intensification and introduction of alternative income generating resources. Despite official engagement and considerable donor investments, there are increasing concerns on the possibility to realize REDD+ objectives in the country. Cited reasons are a dysfunctional state, the vastness of the country and not clearly defined land rights, all of which complicate the execution of the aforementioned REDD+ programs. Furthermore, local stakeholders are rarely consulted, which seriously threatens the identification of locally acceptable and sustainable REDD+ programs. This study thus documented perceptions and aspirations in four rural communities on three key REDD+ themes: (i) state, use and management of natural resources, (ii) transition of the agricultural system and (iii) land and carbon rights. By linking the results to forest cover, population density and the state of the natural resource base in the study villages, we tested the hypothesis that the forest transition theory of Mather and the agricultural intensification theory of Boserup can predict the type of locally appropriate REDD+ interventions. Preliminary results indicate that under increasing population densities current adaptive strategies result in a further backward shift of the forest frontier and a degradation of the resource base. In sites where old-growth forest is still abundant the perception that forest is an inexhaustible reserve and the adherence to traditional, labor efficient and risk averse practices restrain sustained interest in intensified production systems. In sites with limited forest cover the improvement of access to credit and inputs and technical assistance are needed to increase adoption of intensified production systems. In all communities, investments in awareness building, strong local stakeholder engagement and recognition of customary rights were identified as indispensable conditions for local REDD+ support. Given the existing within community heterogeneity in land rights and deforestation responsibilities negotiating equitable REDD+ policies will require substantial transaction costs.

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Resource governance and food security nexus in the Nam Ngum River Basin, Laos

Laos is one of the least populated countries in the mountainous mainland Southeast Asia. In spite of its low population density, competition for resources has intensified in the last decades as private investors race to capture the country's natural wealth including forest, water, mineral and land. Although government has adopted a modern legal framework and produced a plethora of legislation to protect and promote private and communal property, claims to resources continue to overlap on paper and on the ground. The current paper explores the messy overlaps of claims to resources in one of the key river basins of the country: Nam Ngum river basin. The paper reviews recent history of resource governance in the river basin and examines varying international, national and local actors' roles in producing the messy institutional landscape. The paper further examines the ways in which the messy institutional landscape leads to resource degradation and affects the food security of the rural poor.

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Decentralizing forest management: forest tenure reform policy and its implementation in Yunnan province, Southwest China

China's land tenure reform has generated rich experiences for developing countries, particularly for those post-socialist countries. While Chinese land tenure reform for decollectivization in agriculture sector made significant contribute to increase productivities and economics development since 1978, redistribution of forestland had mixed results. Since the 1980s, the Chinese government has initiated two forest tenure reforms to strengthen individual households' use rights to collective forest. The first reform, in 1981, started to transfer collective-owned forestland to individual households. However, the result was mixed and less positive in terms of both environmental and local livelihood outcomes. The subsequent poor policy implementation and forest management led to the recent second forest tenure reform, which started with a pilot test in 2005 and was rolled out nationwide in 2007. To devolve land-use rights and forest ownership of collective forest areas to individual households, the second reform again aimed to provide incentives to households to use collective forestland and forest to generate income and improve their livelihoods and forest management. Moreover, as for decentralization, the second reform also promotes farmer' decision-making in policy implementation. However, regional variability and local governance processes shape the outcome of this reform. A new evidence of forestland allocation is needed to provide empirical and theoretical understanding of dynamics of forest governance in rural China.

This paper explores the governance structure and process of policy implementation related to forest tenure arrangements with a particular focus on the second forest tenure reform in China. Through a

comparison of the two case-study villages, it reveals the correlation between the policy process and the outcome in the context of the local dynamics. In particular, it examines the role of the local state and the multiple centers of decision involved in the decentralization. It argued decentralization outcomes has been limits by several governance constrains, while the central government is committed to enhance local-decisions.

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Participatory simulations to explore the impacts of REDD+ on local land use and livelihoods

Besides mitigating climate change, REDD+ should also facilitate the adaptation of forest-dependent populations to climate change. Direct payments to forestland owners for carbon sequestration/stock enhancement or more indirect contributions such as funding of rural development initiatives are expected to improve or, at least, avoid deterioration of local livelihoods. Concerns have been raised, however, regarding the extent to which REDD+ projects will benefit local populations, especially in terms of ensuring the food security of Southeast Asian shifting cultivators engaged in a process of rapid land use intensification.

We assessed the benefits derived from REDD+ by local land users by estimating its potential contribution to their livelihood portfolios. In the absence of operational REDD+ projects in our research sites in Indonesia, Laos, Vietnam, and Yunnan (China), participatory simulations were used to assess the potential impacts of REDD+ on the land uses and income levels of different household types. Historical land use changes were elicited through participatory mapping with local communities. Research sites in Laos, Vietnam, China and Indonesia were analyzed as successive stages in a broad regional trajectory of land use intensification, starting with extensive, subsistence-based shifting cultivation systems and evolving towards more intensive, market-oriented land use systems. From there, several land change scenarios – including REDD+ scenarios – were defined and explored collectively. Trade-offs between forest and biodiversity conservation and economic growth were investigated, potential livelihood impacts were examined and potential 'winners' and 'losers' were identified. This study showed that there is little prospect for REDD+ to improve local livelihoods beyond what is achieved by on-going land use transitions in the target sites of the I-REDD+ Project.

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Exploring the potential of the permanganate oxidation method as a tool to monitor soil quality in agricultural upland systems

Total organic carbon (TOC) content is a commonly used indicator of soil quality as it is linked to many soil functions and processes; however analysis is costly and requires access to advanced instrumental facilities, rendering it unsuitable for many developing countries. An alternative indicator is the soil fraction dominated by easily decomposable carbon; this may be measured by treating soil samples with 0.2 M potassium permanganate (KMnO4), an oxidizing agent which is thought to mimic the enzymes released by the soil microbial community. The advantage of this method is that it is accessible: it is fast, requires little resource input and is field appropriate. There is no consensus however as to which soil carbon fraction the method targets. Furthermore Skjemstad et al. (2006) has indicated that KMnO4 may oxidise charcoal, a component of the non-labile carbon pool; this has implications for the suitability of the method when used for soils of shifting cultivation systems. The purpose of this study was to investigate the potential of permanganate oxidizable carbon (Pox C) as a reliable indicator of soil quality in agricultural upland systems in Northern Lao PDR. Focus was placed on the relations between Pox C and other soil quality parameters (bulk density, pH, CEC, TOC, total N, exchangeable K, plant available P) and upland rice yields. The ability of KMnO4 to oxidize charcoal was also a focus however, as the study is still in its initial stage, no results can be discussed. Volumetric soil samples (at the surface and at 10 cm) and upland rice yield measurements were taken from three fields with three plots that were previously left fallow for five years (n=9). Pearson's Correlation test and Stepwise Regression analysis was done using SPSS v 16.0 for Windows. Results show that Pox C is significantly correlated to the measured soil parameters in a manner similar to TOC. Both are positively correlated to the soil nutrients: Total N %, P Avail and K Exch; Pox C however had a stronger correlation to K Exch than TOC. This affirms the important role of Pox C in soil processes in the biological, chemical and physical spheres. Furthermore, the regression analysis identified Pox C as an influencing factor for the variations seen in upland rice yields. It is concluded that Pox C is a suitable indicator for soil quality and may be useful in monitoring changes in the soil quality of agricultural upland systems.

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Carbon-commodification as accelerated accumulation: New property regimes and land enclosures in the global south

Carbon is intricately implicated in changing property relations and access to land in the global south in a variety of ways. The carbon economy thus seems to continue the Polanyian theme of making property of abstract things such as land and labor. This has evoked debates on large-scale land grabs in the global south, and the commercialization of carbon seems to be the first stage in a new process of primitive accumulation, where common lands and forest are being enclosed into private property. In this paper we want to argue that despite REDD+ the combination of carbon accountancy, market-thinking, folk-understandings of what carbon 'is', and production of carbon-based market goods (palm oil, biodiesel) contribute to a process of accelerated accumulation, which often rewards logging rather than slowing it. In other words, the 'gaze' through which a diversity of actors see carbon and

determine, what it 'is' and how it is objectified, produces responses that are counter-productive of climate change mitigation.

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Exclusions as consequences of REDD+ and conservation? – A case study from Jambi, Indonesia

Indonesia has a long history of violent land conflicts caused by weak community rights and ever postponed land reforms (Peluso et al. 2008; Bakker & Moniaga 2010). The currently emerging REDD+ governance framework aims at formalizing land tenure and therefore solving land conflicts. Although formalization of land tenure facilitates REDD+ implementation it potentially also contributes to social conflicts through the exclusion of local communities that rely on informal and customary access mechanisms (Agrawal et al. 2008). Based on expert interviews with governmental agencies and NGOs and semi-structured interviews with farmers and village elites this paper aims to investigate power struggles over access and control of Indonesia's state forest in the REDD+ pilot province of Jambi. More specifically we focus on villages in the proximity of the Harapan Rainforest project, one of Indonesia's first private conservation concessions. First, the paper analyses the ability of different stakeholders such as indigenous groups, migrants and conservation companies to access forest land. Second, we seek to identify land access and property relations and their underlying power structures within Harapan Rainforest. Finally, we discuss first impacts of recently implemented conservation-oriented benefit sharing schemes on local power structures. We argue that conflicts over land access and control within Harapan Rainforest are rather initiated by historical inequalities caused by the non-recognition of community rights within state forest than by the intervention of the Harapan Rainforest project itself. Our findings show, that different stakeholders' abilities to access forest land and to consolidate property depends largely on their capability to link with authorities on different political scales. Powerful actors, have the capability to engage with high-level authorities. The private conservation concession of the Harapan Rainforest project was issued by the Ministry of Forestry. This alliance provides enforcement power through the forest police which supports the conservation company implementing the project to prevent access of other stakeholders. In contrast, indigenous groups lack this capability and, with the support of transnational NGOs, seek to reestablish historical ethnic territories overlapping with the project area. Migrants searching for land have to engage with customary leaders of these groups to access land and property. The Harapan Rainforest project provides benefit sharing schemes almost exclusively for indigenous groups and therefore further marginalizes rural migrants. The contested land claims of the Harapan Rainforest case show that REDD+ and conservation are embedded in existing formal and informal struggles for political power and resource access linking different political scales.

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Rights to rocks: REDD+, indigenous peoples and forest tenure in Vietnam

This paper explores changes in Vietnamese forest governance brought about by REDD+. It examines how various actors' claims on forests negotiate forest tenure and contest authority over forests at local and national level. The paper draws on ethnographic insights from a REDD+ demonstration project implemented by a Vietnamese NGO in Thai Nguyen province and Vietnam's Sub-Technical Working Group on Social Safeguards.

The insights from the demonstration project show how REDD+ practice develops within broader contestations over authority between the nation state and global norms. According to Vietnamese law, villagers hold tenure rights to forestland located on the rocky hills surrounding their houses but not to the valuable forestland allocated to a private company. In contrast, the global REDD+ safeguards would call for attention to villagers' long-established rights to the valuable forestland. In addition, there is a discrepancy between national law and global norms with regards to the kinds of recognized social actors. The Vietnamese NGO has decided to implement the project in an area inhabited by Muong and Dao villagers since they are considered indigenous people in line with the global REDD+ safeguards and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). In contrast, Vietnam's legislation does not recognize ethnic minorities as indigenous peoples, considering people of all ethnic groups as equal citizens in the nation state.

Similarly, national REDD+ safeguards emerge within contestations over authority between the Vietnamese nation state and global norms with regard to recognized REDD+ actors and forestland. The rules of the nation state do not recognize indigenous peoples as collective actors, whereas the global REDD+ safeguards and UNDRIP afford them special protection. Vietnam's REDD+ safeguards give precedence to Vietnamese law by replacing the focus on indigenous peoples with a general reference to local communities. Also, Vietnam's safeguards do not recognize the rights of indigenous peoples and members of forest communities highlighted in global REDD+ safeguards but only refer to local knowledge..

Overall, the findings demonstrate how certain actors in Vietnam, such as NGOs, act on global norms even where they are in conflict with national law. They are establishing a foothold for global norms in Vietnam, thereby transforming forest governance on the ground and at the national level. However, national-level debates continue to reflect the strong influence of national law and tend to re-assert the dominance of the nation-state, limiting the space available to global norms.

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Property Rights and Natural Resource Governance: Extending the conceptual analysis in times of REDD+

Twenty years ago Edella Schlager and Elinor Ostrom published an influential article that proposed a simple classification of property rights into five types: rights of access, withdrawal, management, exclusion and alienation. Due to its analytical utility and simplicity the typology has informed two decades of research on property rights and natural resource governance across natural resource sectors and throughout the world.

However, recent innovations in natural resource policy such as REDD+ challenge the focus of this typology on local actors, particularly the relations among them with regard to place-specific biophysical resources. Natural resource governance is no longer limited to sets of local actors regulating who can take how much from a particular resource, and who can make what decisions about the management of the resource. In practice, natural resource governance has become more complex because management today involves higher-level actors, such as governments and NGOs, together with local actors. Also, management produces not only direct biophysical benefits, such as timber, but is also increasingly connected to the provision of additional benefits by actors from outside the community, such as payments for forest conservation. Natural resource governance brings into contact local-level actors, such as women gathering NTFPs or men harvesting timber, with other non-local actors including government agencies, NGOs, and private companies. Moreover, non-local actors employ not only regulatory measures but increasingly also financial payments and the provision of other external benefits to influence forest use and management. This changing nature of natural resource governance becomes particularly evident in the case of REDD+, which involves social actors at local, national and global levels and emphasizes the provision of external benefits in compensation for foregone biophysical benefits.

To reflect the new realities in natural resource governance this paper extends the conceptual framework developed by Schlager and Ostrom (1992). Distinguishes between use rights, control rights, and authoritative rights, the new typology considers the influence of not only local actors but also higher-level actors on natural resource governance. It illustrates the analytical benefits of the extended framework by way of selected case studies of current forest governance arrangements taken from I-REDD+ research in China, Indonesia, Laos, and Vietnam. The paper uses these insights to point out how REDD+ may, or may not, change forest governance in Southeast Asia.

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COMMUNITY FOREST GOVERNANCE FOR CLIMATE CHANGE IN INDONESIA

Community forest governance has been recognized as a policy option other than 'command-and-control' models and privatization schemes. Since 1998, Indonesia has developed a range of community-based forest management schemes as complementary strategies to decentralize forest governance, such as community forestry (hutan kemasyarakatan), village forest (hutan desa), and people's plantation forest (hutan tanaman rakyat). These models have been recognized as part to safeguard communities' participation in forest management and tenure security to forest use and access. It is expected also that community forestry can be included in REDD+ benefit sharing. Nevertheless, policies designed to promote community forest require a good understanding of the complex connections between state-sanctioned concessions, forest conversion, informal land markets and migrants. The key questions on community-based forest governance are: —could community forestry, supported by higher level institutions, protect current and encourage positive local forest transitions? The case study in the forests of Jambi aimed to explore the challenges confronted during the community forest implementation against the historical 'land rights' relations between four key stakeholder groups: the state, local communities, migrants and state-sanctioned concessions. There are some doubts whether community actually can manage forest sustainability, when local norms and practice have been changed due to the relationships between these four stakeholders. The relational concepts of land rights among these stakeholders are informed by social identity, expectation of investment opportunities, insecure forest tenure and competing land use policies. These concepts at the end determine the land use patterns that will affect the success of community forest. External actors such as NGOs articulate community surrounding forest as a forest protector and conservationist, legitimize them as the recipient of REDD benefit sharing, through the processes of action and imagination shaped by the continuous play of history, culture and power. They neglect these relational concepts by these four stakeholders. Keywords: community based forest management, REDD+, emission reduction, participation, conflicts.

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A missing link between climate change mitigation and adaptation in agriculture and forest projects?

Adaptation and mitigation share the ultimate purpose of reducing climate change impacts but are often considered separately in projects and policies because of their different objectives and scales. Agriculture and forestry are related to both adaptation and mitigation, because they contribute to greenhouse gas emissions and removals, are vulnerable to climate variations and are part of the adaptive strategies of rural livelihoods. We assessed whether climate change projects in forestry and agriculture considered synergies between adaptation and mitigation. We selected 235 projects from

adaptation funds (e.g. UNFCCC Adaptation Fund), adaptation plans (e.g. National Adaptation Programmes of Action), mitigation instruments (e.g. Clean Development Mechanism), and project standards (e.g. CCB, the Climate Community Biodiversity Standards). We analyzed whether these projects contributed explicitly to the other goal (e.g. mitigation projects contributing to adaptation) and how they could potentially contribute to it because of their activities or expected outcomes. We found that 32% of the projects reported an explicit contribution to the other goal but only half of them substantiated it. Most adaptation (78%) and all mitigation projects could potentially contribute at least partially to the other goal. Some adaptation project developers were interested in mitigation for the prospect of carbon funding, whereas mitigation project developers integrated adaptation for increasing local acceptance and long-term sustainability or receiving a certification from the CCB standards, which consider both adaptation and mitigation. The potential to integrate the other goal was similar in adaptation and mitigation projects and larger in mixed forest-agriculture projects, in mitigation projects certified by CCB, and in adaptation projects under the Adaptation Fund. More knowledge on the costs and benefits of integrating adaptation and mitigation need to be produced and shared with project developers and fund managers. International and national policies and organizations can play an important role in harnessing synergies at the project level. Besides this global study, will the presentation also contain findings from two case studies from Belize, Central America. One on linking of adaptation and mitigation in forest projects and one on linking of adaptation and mitigation in tropical small-scale farming systems.

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The Socioeconomic Impacts of Rubber Expansion in Xishuangbanna, Yunnan Province, China

Rubber monoculture plantations are expanding in Xishuangbanna, southern Yunnan, at an exceptionally rapid pace of currently more than 100%. The rubber boom was initiated in the 1950s through the establishment of state farms by the government. Later, with the ownership reform of the 1980s, individual farmers were encouraged to engage in this lucrative business, and today, more than half of the rubber plantations in Xishuangbanna have been established and are managed by smallholder farmers. While there is concern about the ecological consequences of this large-scale transformation of a formerly diverse landscape into monoculture plantations, the socioeconomic effects of rubber farming are generally seen in a positive light. Farmers who have started rubber growing are generally far better off than before. Rubber prices have tripled in the last decade, and by 2008 half of the income of farmers in Xishuangbanna was derived from rubber cultivation. It is probably due to the general perception that rubber in Xishuangbanna has been an economic success story that so far no detailed study of the socioeconomic impacts of rubber farming on smallholder farmers has been carried out. This study is an attempt to fill the gap. It is based on our research in two villages of Xishuangbanna: Man Lin which is mainly inhabited by members of the Yi minority, and Man Sai which is predominantly occupied by Dai people. We first present how land use and the economy of the two villages have changed over time through an analysis of land use change maps and the calculation of opportunity costs. In a second step, we analyze the social impacts of the domination of the village economy by rubber in terms of changing life styles and working patterns, effects on men

and women and on different age groups, and of the role played by external groups such as entrepreneurs and migrant laborers.

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Representation in REDD: NGOs and Chiefs over Elected Local Government

The Reducing Emissions from Deforestation and Forest Degradation with the added goals of Conserving and Enhancing Forest Carbon Stocks, and Sustainably Managing Forests (REDD+) is being considered as part of the mix of solutions to the global climate change crises. The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD) is presently funding REDD+ readiness initiatives in developing countries. The UN-REDD states that it is committed to strengthen local democratic processes to help safeguard local people's interests in REDD+. This paper therefore examines the representation of local people's interests in the UN-REDD. It does this through a study of local representation within the UN-REDD policy board, and during the local consultative participatory process that vetted the design of the UN-REDD funded Nigeria-REDD programme. The study finds that representation of local interests in the UN-REDD policy board is through non-governmental organizations (NGOs). It also finds that representation of local interests during the design of Nigeria-REDD were through select community members, chiefs and NGOs. Elected local government representatives are excluded from both the UN-REDD policy board and the participatory design process of Nigeria-REDD. In essence, substantive elected representatives of local people are excluded in the UN-REDD in favor of the inclusion of symbolic and of descriptive representatives. By so doing, the UN-REDD missed an opportunity to stand up for its stated commitment to strengthen local democratic processes.

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Lessons from Free, Prior and Informed Consent Experiments in Vietnam

In recognition of indigenous peoples 'right to Free, Prior and Informed Consent (FPIC) in relation to REDD+, the Cancun Agreements (Annex 1) of December 2010 included the following as a safeguard for REDD+ programs: "Respect for the knowledge and rights of indigenous peoples and members of local communities …and noting [the adoption of] the United Nations Declaration on the Rights of Indigenous Peoples". This presentation discusses how FPIC has been applied in three case studies from Vietnam and offers lessons and recommendations for putting FPIC principles into practice effectively and efficiently in a variety of social and economic settings. Given that REDD+ is still in its early phases in Vietnam, our paper concentrates on lessons learned from implementing the "informed" part of FPIC.

Our analysis reveals three options for fulfilling the "informed" requirement of FPIC: focusing on climate change mitigation and REDD+; putting REDD+/FPIC into the context of land-use changes and livelihood options; and grounding REDD+/FPIC in citizen rights. FPIC activities should be designed based on local needs and preferences, with accountability of facilitators, two-way and multiple communication strategies, flexibility and collective action in mind.

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Opportunities for REDD+ in degraded forests and complex landscapes

Carbon stocks in the vegetation and soils of a shifting cultivation landscape are spatially and temporally variable. This variability presents unique challenges to the quantification of carbon stocks, and generates uncertainty in carbon stock estimates particularly when combining information from studies carried out in different regions. The impacts of changing land use patterns on greenhouse gas emissions are therefore difficult to predict, and there is a danger that this will mean that opportunities for improving land use and reducing emissions in shifting cultivation landscapes are overlooked. Spatial variability results from variation in topography, environmental conditions, soil types and management practices across landscapes and between different regions; while temporal variability is a result of the cyclical patterns of clearance and regrowth that characterises shifting cultivation. Furthermore, existing sampling approaches and allometric models may not be well suited to quantification of carbon stocks in these dynamic landscapes. To improve the understanding of the potential for land use changes that reduce greenhouse gas emissions in shifting cultivation landscapes, we designed a chronosequence study that aimed to control for spatial variability, and which explores the temporal patterns of carbon accumulation in above- and below-ground biomass and soils, in a shifting cultivation landscape in upland Laos. The chronosequence included the following land cover classes: active and fallowed fields used in short (3-4 years) and intermediate (7-10 years) rotation cycles and areas under old fallows (20-25 years). Each land cover class was represented in four replicates located at least 1 km apart. We established plots of 80 m x 40 m and used nested plots to survey tree biomass. We surveyed small trees in a 0.04 ha transect, medium trees in a 0.32 ha plot and for large trees, a total area of 0.82 ha was surveyed. The definition of small, medium and large trees was determined by the land cover type. Samples of deadwood, litter and vegetation were collected from each corner of the plot and analysed for carbon content. Volume specific soil samples were collected from five depths of five profiles (0.5 m) at each plot and analysed for carbon content. Soil carbon stocks in the upper 60 cm averaged 92 t ha^{-1} and were not significantly different between land cover classes. Using the chronosequence, we infer that woody biomass increases by an average of 3.5 Mg ha^{-1} $year^{-1}$ in fallow fields. Our results demonstrate the importance of appropriate sampling

approaches, and highlight the emission reduction potential of land use changes in this shifting cultivation landscape.

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Information and resource exchange in swidden communities of Indonesia, Lao PDR and Vietnam: Lessons for designing REDD+ architecture?

Throughout much of Southeast Asia, remaining forests are found in areas where shifting cultivation - or swiddening - is practiced. Swiddeners are commonly stigmatized for what are labeled as unsustainable agricultural practices, and as a result are often marginalized. Any land-use related project, including REDD+ projects implemented in these areas should therefore take account of swidden practices and the communities themselves.

One essential issue that tends to be overlooked by the actors implementing and planning REDD+ projects is how swidden communities exchange information and resources. Swidden communities are generally seen as being static, and locally bounded, although even seemingly remote rural households and communities are engaged in multiple social networks that link people and places, including rural to urban settlements, individuals to organizations, and peripheries to centers. Before creating new institutions for any REDD+ related information and resource exchange system (e.g. for monitoring, reporting, verification and benefit sharing), it is imperative that existing networks that could be used for these activities are identified and factored in to the design of a REDD+ architecture such that the realities of the swidden communities are considered. This paper uses data collected by household surveys and Focus Group Discussions in communities that are at least partially engaged in swiddening in Indonesia, Laos and Vietnam, to identify: (1) how the swidden communities exchange information and resources; and (2) how socio-economic factors, migration and personal relationships of the household influence access to information and resources. Moreover, the paper then discusses how these existing networks in the swidden communities could be useful for REDD+ activities and provides insights on the current level of knowledge of REDD+/PES present in the swidden communities.

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Lay of the Land: Organizational Networks for REDD+ in Lao PDR

Institutional and policy landscapes for REDD+ in developing countries are far from straightforward, but the Lao PDR context is a particularly complex one due to simultaneous transitions across different domains. Rapid land-use changes in the country are well documented, in which local practices such as shifting cultivation are increasingly trapped by broader economic, demographic and policy pressures. Transitions are also seen within institutional networks of information and resources as the REDD+

mandate becomes divided between state agencies, while other actors attempt to adjust or maintain their positions. Meanwhile the aims and undertakings of international, national and subnational actors reveal potentially divergent objectives that have perhaps always been present in environmental sustainability initiatives. Does REDD+ offer an opportunity address such incongruity? Greater realism is needed about how people can engage with REDD+, including those who live in and use forests and those charged with implementing REDD+; as well as about the relationship between REDD+ goals, national and local needs and priorities, and long-term processes of change. Progress is meanwhile urgently needed for REDD+ to prove its worth among organizational networks fatigued by time-intensive planning and consensus building, unfulfilled funding and high technical demands on at present still under-equipped state agencies. This paper combines qualitative methods and networks analysis to identify: (i) organizational perceptions and approaches to the challenges and opportunities for REDD+ at national and subnational levels; (ii) related horizontal and vertical information, resource and influence networks; and (iii) the degrees to which formal and informal hierarchies and potential financial incentives influence and shape the REDD+ policy domain.

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Do remittances reflect livelihood typologies in Amazonian smallholder communities?: Drawing insights for REDD+

Remittances received by smallholders in the forested tropics have environmental, economic and social impacts. In the Brazilian Amazon sources of remittances include financial contributions from urban-based family members, migrants and recently, an increase in government-sourced monthly allowances (*bolsas*) add to income sources. These cash streams typically follow urban to rural trajectories and provide a direct financial injection to otherwise cash-poor smallholder households. While increasing recognition for the importance of remittances in smallholder context exists, knowledge regarding how such remittances affect smallholder livelihood portfolios is scant. Choices made by households regarding how to invest these monetary flows are poorly documented. Correspondingly, there is little information linking investments from remittances to land use choices and forest cover. We present preliminary results from a household questionnaire survey conducted with households (n = 156) in 12 smallholder communities along the River Arapíuns in Pará state, Brazil. We quantify amounts received in remittances in the previous year and from government sources (e.g. maternity allowance, school allowance and others). We then present data on livelihood portfolios, quantifying agricultural investments from annuals and perennials, livestock, forest dependence (for non-timber and game products) and amounts held in durable assets. We will run multi-model inference to assess how remittances are linked to livelihood typologies and forest and land cover outcomes. We will develop these conclusions by exploring how understanding investments sourced by remittances may contribute to an early understanding of what forest and land cover impacts we might expect as a result of income generated via REDD+ initiatives (Reduced Emissions from Deforestation and Degradation).

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Fair and effective? The prospects of Reducing Emissions from Deforestation and Degradation in Northern Cambodia

Reduced Emissions from Deforestation and Forest Degradation (REDD+) is a proposed mechanism to mitigate global climate change without compromising biodiversity and local livelihoods. REDD+ initiatives are being introduced at a fast pace across the Global South. Many of these initiatives are local REDD+ projects, which have in common that they aim at combining the objectives of effective and efficient reduction of greenhouse gases, and equitable distribution of benefits to local communities. However, it remains a question whether this is realistic. In this paper, we address this question in the particular context of a REDD+ demonstration project in Oddar Meanchey district in Northern Cambodia. Based on a study of the actual drivers of deforestation in the locality and of the mechanisms presently determining how the participating communities share costs and benefits from forest governance, we conclude that the studied approach to reducing emissions from large scale deforestation is not effective in its present form, and is even likely to increase rather than decrease inequalities among rural people in the area. Factors such as high pressure on land, weak land- and forest tenure, weak governance, and local power structures work against the prospects for the REDD+ project to reach its objective. Finally, we discuss what the project can do to overcome these challenges, and whether other similar projects can draw on the lessons learnt from the demonstration project in Oddar Meanchey.

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Local movement-International arguments: Preserving the last remaining urban green space in Bandung

This paper might not focus on REDD++, but this case of small strip urban land shows how people try to obtain control on public land for preservation or urban green space. This paper is about local movement to protect a small piece of urban green space from conversion by its legitimate owner, the municipal government of Bandung, in cooperation with private developer. The argument of this paper is that local initiative is more effective to protect environment and preserve urban green space when they use the carbon-land-property arguments. Currently, many "big" initiatives to protect environment comes from foreign-international actors, imposing international agenda, backed up with substantial amount of money and rational arguments and strategies developed by a number of intellectuals. But those initiatives constantly under criticisms and improvements. This paper will present a story of local movement using "commonly used" international arguments and strategies of carbon-land-property. Then, the paper will compare them with the mainstream international arguments and strategies to protect environment. And some lesson learned from this comparison, will conclude this paper.

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Impacts of Joint Forest Management on Forest Condition: Case studies from Morogoro Region Tanzania

Over the last three decades many countries have adopted polices supporting Participatory Forest Management. This is in line with Principle 22 of the 1992 Rio Declaration on Environment and Development, which highlights the importance of local people and their participation in sustainable development. The Eastern Arc Mountains of Tanzania are renowned in Africa for high concentration values (Burgess et al. 2006) and provisioning of ecosystem services such as water catchment, which Joint Forest Management aims to protect. The objective of the study was to assess whether and to what extent Joint Forest Management (JFM) fulfils one of its own policy goals of improving the condition of forests placed under this management regime, as well as alter forest use patters. Six Forest Reserves in the Uluguru Mountains in Tanzania were arranged in three paired sets, each set including one under JFM and the other under traditional state management (non-JFM). At each site data were collected on forest condition by conducting forest transects in 2005-2006. Repeating forest transects for one paired set in 2013, this study assessed temporal changes in forest condition and the effects of JFM. Both quantitative and qualitative methods such as focus group discussions were applied in the study. The results supporting better forest condition of JFM forests in 2 of the 3 sites in the study are positive, but cannot necessarily be attributed to the effects of JFM on forest condition. JFM in these cases has not been shown to change human forest use regarding illegal cutting of trees of different dimensions. The ability of JFM to improve forest condition over time was examined, and could not be confirmed for this specific case as substantial forest loss was recorded despite of management regime. The study shows a dysfunctional JFM regime with multifactorial pressures and threats affecting the ability of the local community to manage forest resources sustainably. The study also presents a case where strong local organization is leading to active forest management, as well as placing restrictions on illegal forest activities. Very few studies report any baseline data from both JFM and comparator sites, and in these cases data collection and presentation have been limited (Bowler et al. 2012). This study could contribute to an understanding how JFM functions in practice and, and hereby improve its applicability as a viable tool in sustainable forest management under initiatives such as REDD+.

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Why REDD+ Remains Elusive in Human-Dominated *Miombo* Ecosystems of South-Eastern Tanzania?

The assumption behind the international funding mechanism to reduce emissions from tropical deforestation and forest degradation (REDD+) is simple: equitable sharing of forest carbon payments will encourage adoption of sustainable forest management practices among forest owners, users

and/or managers which in turn will reduce emissions, conserve biodiversity and improve local livelihoods. In human dominated *miombo* ecosystems of south-eastern Africa, REDD+ uniquely combines two emerging forest-land management approaches: that of innovative payment for environmental services (PES) and recently decentralized community based forest management (CBFM). Using cases of REDD+ experimentation in Kilwa and Lindi Districts in south-eastern Tanzania, this paper empirically investigates why REDD+ has remained elusive in that social and ecological context and how to make it work. Drawing on data from extensive ethnographic field research (participant observations, oral histories, focus group discussions and semi-structured in-depth interviews) spanning four years (2010-2013) combined with household surveys, standard forest inventories and geospatial analytics, I argue that REDD+ remains elusive for four interlinked reasons. First, given low prevailing carbon prices and low carbon stocks in *miombo* ecosystems, carbon payments remain inadequate in making avoided deforestation a competitive land use against alternative land uses such as shifting-cultivation and wood extractions. Second, local people remain hesitant in accepting REDD+ given the social memory of harsh exclusionary forest conservation approaches during colonial and post-colonial socialism eras. Third, ongoing land conflicts in the region and elsewhere in the country as a result of increased competition for land for livestock herding, large-scale agricultural investments, conservation projects and oil and gas exploration and mining activities, local people reject REDD+ perceiving it as another 'land-grabbing' activity. Fourth, the uncritical embrace of western-style deliberative democracy for negotiation and consensus building among diverse local actors remain an ineffective mechanism for claim-making by local forest residents. Instead, local forest residents have adopted varieties of violent and non-violent resistances in asserting claims and challenging these introduced forest management institutions. I argue that while these resistances are affecting effectiveness and efficiency of REDD+ interventions in the short term, they are crucial for making durable local institutions for attaining sustainable social and ecological outcomes in the long run.

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The Utility of Landsat and MODIS Time Series for Detecting Forest Disturbance in Seasonal and Evergreen Forest of Southeast Asia.

Forests throughout Southeast Asia are currently experiencing rapid transformation to more lucrative land use systems. Primarily driven by global demand for commodities such as natural rubber and oil palm, swaths of forest are making way for monoculture plantations across the region, from smallholder to industrial scale. Methods for consistent and timely monitoring of these changes are critical to many scientific fields and global initiates, including Reduced Emissions from Deforestation and Degradation (REDD+). Recent developments in dense time series analysis offer high potential for forest monitoring but to date these methods have not been adequately explored in the Southeast Asian

context. The combination of persistent wet season cloud cover, dry season aerosols, rapid vegetation regrowth, and pronounced phenological variation among different forest types in the region requires integrated methods to solve related problems in optical remote sensing data. This paper explores the utility of two extensively used sensors, Landsat and MODIS, with regard to time series mapping of forest disturbance in mainland Southeast Asia. The study illustrates the advantages of forest stratification and of combining times series models using different spectral indices. We also show how annual Landsat disturbance mapping can be used in up-scaling to MODIS level time series models. Overall this study demonstrates dense time series using optical sensors to be very effective tools in ongoing forest monitoring.

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Trajectories and drivers of land use changes affecting emission reduction options at subnational level in Indonesia

Within the efforts of mitigating climate change under AFOLU sectors, identification of driving forces that play major roles in the loss of forest and in the land use conversions is crucial as initial steps towards developing action plans. Understanding the driving forces will help the multistakeholder processes in developing mitigation action plans within their areas of authorities and local settings. In Indonesia, for such efforts, sub national spatial planning is the potential platform to put forward multistakeholders' aspirations which then build up into action plans in low emission development pathway. We present two case studies in which multistakeholders' participation was applied in the identification of driving forces of forest loss and land uses changes up to the development of mitigation action plans. Tanjung Jabung Barat district in Jambi and Kutai Barat district in East Kalimantan are two districst in Indonesia, with a contrasting topography, landscape configuration, stages in forest conversion process as well as demographic and livelihood typologies. We applied Focus Group Discussion (FGD) approaches for describing the major trajectories of changes, driving forces, as well as in the iteration processes of consulting the viability of scenarios and mitigation action plans developed. We also analysed relevant maps and other secondary data to get evidence of landscape dynamics which might have affected the development of action plans. Different trajectories of changes in the districts are triggered by forces within the national policy arena and various trade, market and price factors. Despite similar trends, stakeholders' perceptions in identifying drivers respond to the different typologies of their districts and different stages of forest transition gradient. In developing mitigation action plans they indicated the incorporation of the need for addressing land use change driving forces while at the same time taking into account the need for the district development planning.

Keywords

drivers of land use changes, low emission development planning, participatory approach, spatial analyses

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Trade-off Analysis of Emission Reduction in Kutai Barat-Indonesia

Emission reduction is a major policy agenda in responding to global warming issue. Indonesia is known as the country with the highest greenhouse gas emissions from land use and land cover change, with the third highest overall emissions. As a consequence, Indonesia has committed to reduce greenhouse gas emissions (GHG) of 26% below projections for 2020 independently and up to 41% with multilateral supports. However, emission reduction policy should maintain 7% of economic growth. This commitment entails the need for assessing the tradeoff between economic loss and emission reduction. We exercised trade-off analyses of emission reduction from land use changes in Kutai Barat district, Indonesia, using three different methods. The first method is the most basic method by plotting between carbon stock and profitability of land uses to classify land uses into four categories: (1) High carbon-stock and low profitability; (2) Medium carbon stock and medium profitability; (3) Low carbon-stock and high profitability; and (4) Low carbon-stock and low profitability. The second method is to assess trade-off through the opportunity cost curve using the *REDD-Abacus* software. The opportunity cost curve shows the comparison of the opportunity costs of many different types of land-use change in USD per ton CO2e and shows the quantity of potential emissions reduction per type of land-use change. The third method is spatially explicit model using *FALLOW* (Forest, Agroforest, Low-value Lands Or Waste) model, which simulates land cover change at large scale (e.g. province or district) and consider the effects of economic, biophysics, social and demographic factors to landcover change in the landscape. Social factors include the effect of family and extension from local government to smallholder decision in land use options. These models proved to contribute to the nexus of emission reduction and economic opportunities within REDD+ and NAMA-LAAMA initiatives; *REDD-Abacus* method is useful for analyzing carbon market feasibility while *FALLOW* is powerful to simulate the impacts on farmers' incomes. We concluded that for Kutai Barat to move forward in developing options for emission reductions, the combination of both methods are complementary not only to assess the trade-off but also to obtain feasibility of carbon storage as a commodity within emission reduction schemes.

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Multilevel Governance Architecture and Lessons for 3E+ Implementation of REDD+

Recently, there has been strong global interest in transitioning REDD+ from a project-based approach to a national approach. This transition includes various elements of REDD+, including distribution of benefits from carbon sales, setting reference levels, monitoring, reporting and verification, relevant land use policy (including planning and tenure), and safeguards. One way to accomplish this transition is by implementing a subnational jurisdictional approach, or some other approach that nests projects and activities on the ground within a national framework. Regardless of the approach taken, moving towards a national approach requires negotiation of multilevel governance dimensions on these

different elements of REDD+. We use evidence from interviews with project-level actors from 23 REDD+ projects – including six subnational jurisdictional programs – in six countries to characterize the multilevel governance challenges that are presented for REDD+. We analyze the differences in perceived challenges between subnational jurisdictional programs and non-jurisdictional projects, and then analyze project-level actors' perceptions of influences exerted between levels of governance related to REDD+. We find that there are important multilevel governance challenges and opportunities related to the several elements of REDD+. These include vertical coordination and information sharing for MRV, horizontal and inter-sectorial tensions in land use policy and planning that can compromise the goals of REDD+ projects, and difficulty in clarifying which actors at which levels should be involved in benefit distribution systems. We characterize project-level actors' perceptions of these issues, and suggest priority areas for future research and policy to focus on as countries move towards a national REDD+ system.

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A path towards a Green Economy in the Heart of Borneo: Landscape Assessment using Land Value Mapping for Low Carbon Development Plan in Kutai Barat

Kalimantan has about 16 million hectares of degraded land with low carbon stocks, because deforestation and forest degradation replaced the high conservation value forest and high carbon stock area. Part of these degraded lands can, in theory, be used to expand agricultural cultivation, e.g. for palm oil expansion and other commodities, thus the development doesn't take forests areas to avoid deforestation and can serve to deliver climate and environmental objectives. However, the inconsistencies between land use plans, for example between provincial and district plans, and between concessions permits and land allocations inhibit spatial planning that reconciles production and conservation.

Landscape assessment needed to find the solution and options for development that minimizes impacts on valuable areas for conservation and with high carbon stocks. We use the Land Value Mapping tool to develop spatially explicit pathways for sustainable development of a district that balances economic as well as conservation targets. Kutai Barat district in the Heart of Borneo has been selected for this study because the district integrated into REDD+ agreements at provincial, national and international levels and has demonstrated strong commitment with its Five Year Development Plan (2013-2018). We collected all spatial data related to the Development Plan such as high conservation value areas and high carbon stock areas. We used the land value mapping tool to identify historic trends of deforestation and to analyze the parameters that are statistically associated with deforestation.

Results show that the main drivers of deforestation within Kutai Barat are oil palm expansion, industrial forest plantations, unsustainable forest management and irresponsible mining concessions. Although rubber is currently the dominant agricultural commodity produced in Kutai Barat, there are

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several indications that both industry and smallholder interest is shifting towards oil palm cultivation. The development of oil palm plantations has seen rapid growth between 2005 and 2009, with oil palm currently covering over 30,000 hectares. Kutai Barat contains 2.9 million hectares of high conservation value land and approximately 285,000 hectares of degraded land, which are possibly available for agricultural expansion. One key building block in developing a low carbon development plan is sustainable land use planning, but in the current provincial land use plans, sustainable land use planning is not sufficiently optimized not intensively discussed.

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The Dynamics of Shifting Cultivation in the Kilosa District, Tanzania: Trends and driving forces

Over the past few years, there has been contradicting information as regards to the dynamics of shifting cultivation in Tanzania. Some studies suggest that shifting cultivation is declining while other studies suggest that it is increasing. Global and regional studies have proved difficult to offer an answer to how and why this system is changing due to lack of common pattern of change.The driving forces also differ in time and space. Based on a case study of two villages in Eastern Central Tanzania, this paper combines household surveys, focus group discussions and interviews with key informants in order to explore the dynamics of shifting cultivation over the past 20 years. The results reveal that the number of shifting cultivator has declined in the highlands and slightly increased in the lowland. It is argued that, resettlement to allow implementation of reduced emission from deforestation and forest degradation (REDD+) pilot projects and conversion of general land to forest reserves have been the main drivers influencing the decline. Market access, land and labor availability are the main driving forces for the increase in shifting cultivation. The results reveal further that some old practices and technologies in shifting cultivation have changed or replaced by new ones. The paper concludes that the practices of shifting cultivation have changed and might continue to change but shifting cultivators will remain. However, there is a possibility that the implementation of proposed National Strategy for REDD+ in Tanzania and conversion of general land to forest reserves will put an end to both shifting cultivation practices and cultivators.

Key Words: Land Use Change, REDD+, General land, Swidden, Multinomial-Logistic Regression

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Recognition and The Cultivation of Sub-National Authority from Above through REDD in Africa

This paper explores the issue ofinstitutional recognition and construction of sub- national authorities in the REDD + process in Africa.Multilateral donors, international organizations, projects and a variety of national legal, policy, decisional and programmatic instruments are developing recognitive circuits, transferring powers and resources to sub- national institutions and cultivating forms of infra-authorities. This process is called "recognition from the top". As a result of a studying up effort, this paper reviews strategies and technologies of institutional recognition. By empowering some unrepresentative sub-national institutions, upper level institutions do not promote accountability and local democracy, as misrecognized institutions are marginalized and cannot influence decisions about REDD + implementation. Moreover, subnational institutions recognized from the top are not always recognized from below and representative local institutions are not recognized from thetop. Local governments and public authorities suffer from misrecognition and mal-recognition. Conversely, a cortege of committees, local NGOs and private companies are recognized in the institutional geometry. Upper level institutional technologies have generated two categories of local institutions – those who have authority and resources and those who don't have. Using social theory the paper recommends the promotion of institutional processes based on inclusion and mutual respect.

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Examining local representation and participation of forest dependent communities in REDD+: A case study from Oddar Meanchey province, Cambodia

In Cambodia, the first pilot project to Reduce Emissions from Deforestation and forest Degradation (REDD+) is currently being implemented. The project involves 13 community forestry sites in Oddar Meanchey province, aiming for local communities to realise the benefits of selling carbon.

Drawing on theory, as well as empirical data collected from field research across two community forestry sites, the study examined whether the local leaders represent forest dependent communities.

The study found that the local leaders are given power, through the implementation of decentralised forest management, to apply rules regarding villager's access to benefits – such as non-timber forest products (NTFPs). They were also found to have the power to create their own rules, such as the ability to control payments for these benefits. Further, the community forestry group presidents at the village level were found to have the power to influence who participates in CF activities – such as patrols and meetings, and those who do not - thereby having the power to exclude.

Further, REDD+ in its most simplistic form defines 'communities' as units within which people share common interests and needs. However, within and across the villages there was a lack of homogeneity within the community structure. This disregard for a lack of homogeneity therefore caused differences

in power between the villagers at the local level to be ignored.

Simultaneously, the measures designed to hold leaders to account, such as elections, were not being implemented or upheld, and it was found that the local leaders of the two community forest sites visited were poorly representing the forest dependent communities.

The study suggests mechanisms be put in place to strengthen the accountability and transparency of the use of benefits generated by community forestry, as well as improve the avenues for inclusion in community forestry activities and information sharing. For if measures are not strengthened or improved, then community forestry risks further marginalising those groups who are most dependent on the benefits from community forestry, particularly females and landless migrants. This ultimately questions the good governance mechanisms designed for the effective implementation of REDD+ within existing community forestry areas.

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Community monitoring for REDD+ in shifting cultivation landscapes

Meaningful and effective involvement of local populations in biomass monitoring for REDD+ is a major challenge. Some of the most marginalized communities in South East Asia rely fully or partially on shifting cultivation. In their shifting cultivation landscapes, the different land-use types are very complex and ever changing, and this provides additional challenges for their involvement.

Previous studies have shown that, once community monitors have received brief training, they can monitor biomass in a variety of forest types - ranging from relatively simple-structured Himalayan forests to diverse tropical forests. To understand how local communities that rely on shifting cultivation can participate in REDD+ monitoring and MRV, we carried out a study with two shifting cultivation communities in West Kalimantan.

We introduced the two communities to plot-based carbon biomass monitoring and we examined how they monitored the biomass. Even professional scientists have limited experience in biomass carbon measurements in swidden landscapes. We therefore also examined the relative importance of the different carbon pools in the landscapes.

We facilitated participatory mapping, where the land areas belonging to the communities were discussed and mapped. The areas were then stratified with respect to tree cover and local land-use terminology. The location of permanent vegetation sampling plots was identified with the use of systematic random sampling. We found that the participatory maps did not fully capture the very complex and fine-patterned mosaic of land uses in the swidden landscapes. Field visits to the sampling plots showed that not all the plots were located in the expected land-use type. Practical solutions to this and other challenges were tested and evaluated. A total of 1,800 trees in 108 plots were identified and measured twice by both community monitors and professional foresters. Our study provides new insights into how swidden cultivators can establish permanent vegetation plots, locate trees, identify tree species, measure tree girths, and calculate biomass carbon for REDD+. In addition, our study documented the importance of the different carbon pools in the swidden landscapes.

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Opportunities for a Just REDD+: Linking Monitoring of Biodiversity with Capacity-Building and Empowerment of Local Communities

Conserving biodiversity is integral in the tripartite REDD+ approach. Involving local communities in the monitoring of biodiversity in REDD+ programs could be a way of strengthening the bond between social development and sustainable forest management. Previous proposals for monitoring of biodiversity in REDD+ initiatives have either been largely theoretical or focused at high tech, top-down solutions such as remote-sensing-based biodiversity assessments with little or no involvement of the local stakeholders who are the day-to-day 'custodians' of many forest areas.

If biodiversity monitoring targets for REDD+ schemes are faunal, a frequently used method is dedicated surveys along patrol routes. Historically, such surveys have largely been undertaken by scientists. Here we test whether community members can conduct patrol route surveys of mammals and birds and reliably identify the species encountered.

We compared mammalian and avian species assemblage data from community members' patrol routes and professional scientists' line transect surveys at 8 study sites across Mount Kitanglad Range Natural Park (MKRNP) in southern Philippines. We found that across all 8 study sites the local communities equaled the scientists in observing species abundance distributions. Our findings suggest that communities using simple patrol route surveys can monitor mammalian and avian diversity with a corresponding quality of professional scientists, and that community-driven patrol route surveys of mammals and birds may be a feasible way of linking biodiversity monitoring with capacity-building and empowerment of community members in REDD+ schemes.

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Telecoupling and global land-related greenhouse gas emission

Global land use and land use change is increasingly driven by distant forces, as globalization and liberalization of trade markets connect biomass consumption with production over large distances. To analyze the underlying drivers of distant land use and land use change, a new framework of telecoupling - socioeconomic and environmental interactions over distances - is developed, which

allows studying (system) interactions among distant coupled systems. Acknowledging telecoupling effects in land system science requires to go beyond territorial based research, which is the basis of many land change studies, and instead requires a process based focus.

In this study we model global biomass flows related to different land use categories between 2007 and 2030. We use an economic multi-regional input-output model in combination with biophysical (coefficient based) calculations to analyze global telecoupling in agriculture and forestry. The resulting trade flows are used to compute CO_2 emissions due to land use and land use change. This methodology allows coupling emissions in producing countries to the end-consumers of biomass products. As there is a considerable amount of uncertainty in scenarios for future land use changes, we analyzed a low, a medium (baseline) and a high scenario for the following exogenous parameters: crop yields, population, diets.

Results show that there is a considerable difference between greenhouse gas emissions related to biomass production and consumption of major world regions. For example, in 2007, North Africa and the Middle East and Europe generated more CO_2 from their biomass consumption than from their biomass production, while the opposite is true for Tropical America and Sub-Sahara Africa. These differences are largely related to the CO_2 that is embodied in biomass products traded between different world regions.

Moreover, the analysis of greenhouse gas emissions over time shows an asymmetry between biomass trade and CO_2 emission: small increases in biomass trade can yield relatively large emissions in cases where increased biomass demand results in deforestation – either domestically or in distant production locations. Therefore, expected trends in greenhouse gas emissions due to biomass consumption are mainly dependent on increases in demand, for example caused by population increase or dietary changes. Consequently North-Africa and Middle East as well as China are expected to be the largest net emitters according to their projected consumption increase, but the production of this biomass and the related CO_2 emissions largely occur in other world regions.

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Rush for cash crops: Implications for pressure on land, access rights and REDD in Laos.

Laos witnesses a strong rush for cash crops as a response to market demands for agricultural products, especially from the neighboring countries. The opportunity for increased economic income attracts manifold actors to forward the growing interest in agricultural production. In north eastern Laos, maize is currently the boom crop, grown under a system of contract farming for the Vietnamese market. The Lao government simultaneously promotes policies towards increasing economic development through increased engagement in concessions and increased production of cash-crops

and towards increasing forest-cover and prepare for participation in REDD projects. Lao farmers make considerable income from the contract farming, but there are also economic and other interests from investors and government representatives at different levels. The rush for cash crops is also visible in the resulting land use patterns. The increased pressure on land also has implications for how the villagers in the case-study villages think about rights to access and use land allocated to the village.

This paper explores how the recent booming of cash crops affect traditional land use of local communities and encroachment of forest in the case-study areas, and how different authorities react to these changes in land use, considering that they face contradicting policy-goals. Through its focus on cash-crop production, REDD-preparation and interactions among donors and NGOs, civil servants from different sectors and different levels, and famers, the paper links the global environmental concern and global food interest to local land use changes and negotiations over authority. Furthermore, it looks at the contestation of different claims to rights and resource use, and of different policies, and how relations of authority and power are (re-)created simultaneously with the distribution of rights and obligations.

The district authorities have recently entered into a contract with a Chinese company, promising the availability of 56.000 ha. of land (equivalent to a quarter of the entire district) for biofuel plant cultivation. This production is also supposed to be organized on a contract-farming basis. The paper analyses the detailed series of actions, permits and interests that lay behind this extraordinary approval in Hua Meuang District, Huaphan Province, as well as who can reap the benefits of the new agreement – and who will pay the cost in terms of reduced access to land? Is there any space left for REDD? And if not, how does civil servants working with REDD readiness respond to this?

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Scaling up community collected data for REDD+ Safeguards: what are the key challenges and opportunities?

Whilst Parties to the UNFCCC have agreed to provide information on how on the REDD+ Safeguards outlined in the Cancun Agreements (1/CP.16) are being addressed and respected through a Safeguard Information Systems (SIS), little guidance has so far been developed on the nature of SIS.

While the development of country's SIS will be interpreted nationally and will build on existing systems, in recognising that communities own and/or manage around quarter of tropical forests (RRI 2010), community forest monitoring offers a viable approach for the provision of data on REDD+ safeguards. Furthermore, the REDD+ Cancun Safeguards themselves call for the full and effective participation of indigenous peoples and local communities within REDD+ and respect for their knowledge, including them within REDD+ information systems would therefore appear appropriate.

The Forest COMPASS project is exploring the role of communities in providing information for SIS, drawing lessons from two participatory community forest monitoring projects in Guyana and Acre State, Brazil. In Guyana, as part of efforts to develop a participatory monitoring framework, the

community defined their own indicators for wellbeing. In Acre State the project is examining how community collected data on tenure regimes and conflict and communities' perceptions and access to public policies can provide information for Acre's jurisdictional REDD+ SES standards.

Both of these case studies offer insights into the challenges and opportunities of community forest monitoring approaches for providing information for SIS. These include the difficulty of scaling up pilot projects to the national scale, aggregating and integrating data into a national system, and sustainability of long-term financing. In helping to address these challenges and scale up community collected data for REDD+ Safeguards, the Forest COMPASS project will seek to collate and analyse existing data and approaches, share lessons and tools and build capacity amongst decision-makers and community forest monitoring practitioners.

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